



3. Strategically Prioritizing Teacher Quality and Quantity Can Reinvigorate the Teacher Pipeline

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Executive Summary

A Nation at Risk (ANAR) concluded that both the quality of current teachers and the quantity of available talent to fill teaching roles in public schools were sorely deficient. The report offered numerous recommendations to improve both dimensions of the teacher pipeline but failed to provide a coherent strategy to resolve the inherent tension between quality and quantity. Consequently, policy efforts that developed in the years following coalesced into two different approaches to teacher reform that frequently came into conflict and worked at cross-purposes.

In this essay, I focus on how *A Nation at Risk* helped to shape policies and practices impacting the teacher pipeline. I document the report's conflicting messages and review some of the evidence on key policies that grew out of the report's recommendations, even though they often worked against one another. Importantly, the report omitted consideration of socio-economic differences across schools and how they shape the teacher pipeline and limit disadvantaged students' access to instructional resources. Also, the report failed to recognize how pathway policies have been used to discriminate against people of color, contributing to continued underrepresentation in the workforce.

Moving forward, I identify the unique challenges for the teacher pipeline today and draw some parallels with 1983. I urge policymakers to learn lessons from the ANAR experience and plot a path forward by strategically combining promising reform efforts from both sides of the teacher conflict and implementing them in context-dependent ways. I also propose a big idea that would use generous scholarship money to directly build a cadre of individuals ready for teaching in the classroom.

- *A Nation at Risk* recognized the importance of both quality and quantity in the teacher pipeline.

- However, *ANAR*'s recommendations were at times contradictory, and they failed to consider policies that discriminated against people of color.
- Generous scholarship funding could build a cadre of teachers who are ready and suited for today's classrooms.



In its alarming and unapologetic critique of the American school system, *A Nation at Risk* directed many pointed barbs at the teacher workforce and those tasked with preparing teachers.¹ The report summarily concluded that both the quality of current teachers and the quantity of available talent to fill teaching roles in schools were sorely deficient; both dimensions needed immediate intervention to help achieve education excellence. It offered a range of explicit recommendations regarding teachers to address these staffing challenges, while simultaneously making other recommendations that implicitly demanded more and better teachers. What the report failed to do, however, was reconcile the inherent tensions in simultaneously pursuing both higher quality and quantity or offer a strategy to systematically develop the teacher workforce that was desired.

Consequently, *A Nation at Risk* unleashed a wave of teacher-focused reform that was both expansive and incoherent. With the report used to justify efforts as disparate as establishing best practices through the National Board for Professional Teaching Standards and creating new alternative pathways into teaching, *A Nation at Risk* seeded reform efforts that grew in opposing directions over subsequent decades. Essentially, the report helped organize both sides of the growing conflict that would later come to be dubbed the "teacher wars."²

In this chapter, I focus on how *A Nation at Risk* (henceforth *ANAR*) helped shape policies and practices impacting how new individuals are attracted into public education, prepared to be teachers, and deployed once they are ready for the classroom. Hereafter, I use the label "teacher pipeline" to refer to this whole preservice and induction process. In the sections that follow, I document the report's conflicting messages and review some of the evidence on key policies that grew out of the report's recommendations. I also highlight critical omissions from the report and the resulting missed opportunities for reform. Moving forward, I identify the unique challenges for the teacher pipeline today and draw some parallels with 1983. I urge policymakers to learn lessons from the *ANAR* experience and plot a path forward by strategically combining promising reform efforts from both sides of the teacher conflict and implementing them in context-dependent ways. I also propose a big idea that would use generous scholarship money to directly build a cadre of individuals ready for teaching in the classroom.³

STAGNATING AND LISTLESS: PUBLIC SCHOOLS IN 1983

Before diving into *ANAR*, let's quickly set the stage. In 1983, US public schools were at the tail end of nearly a decade of enrollment declines as the baby boomer generation aged out

of K-12 schools and were replaced by the less-populous Generation X kids.⁴ Public school enrollment had peaked in the early 1970s and shrunk by seven million students by 1983, amounting to a loss of roughly 15 percent.

People worried that not only was enrollment in decline but also the quality of public education itself. The public's responses to Sputnik (1957) and the technological advances that followed during the 1960s were well on their way to fading into collective memory. Though children in elementary school and middle school showed small achievement gains in the 1970s, SAT scores among high school graduates were in an unexplained decline.⁵ Some of the public's worries were certainly shaped by growing pessimism (especially among White parents) about school desegregation efforts. Over the course of more than twenty years following the 1954 *Brown v. Board of Education* Supreme Court decision, schools integrated in stages: first, resistance to desegregation; second, limited integration through school choice programs; and third, more forceful government actions, such as busing students, to achieve racial balance.⁶ The consequent White flight accelerated through the 1970s, pushing private school enrollment up while public school enrollment declined.⁷

The teacher workforce was also viewed as a depreciating asset. The profession was increasingly unionizing in the late 1960s and into the 1970s. Unions were often perceived as stymying school performance, hindering school leaders' ability to serve students. To wit, collectively bargained contracts grew in their specificity in this era, increasingly covering many non-compensation items—for example, class size maximums and procedures for reductions in force.⁸ Meanwhile, the professional workforce was opening for educated young women, and fewer college students chose to pursue teaching as a career. Retrospective analyses of college graduates' occupational choices during this era find that teaching attracted significantly fewer women with strong educational backgrounds.⁹

Finally, policymakers in this era did not possess a clear road map for success since much of the conventional wisdom about schooling was recently upended. The highly influential Coleman Report (1966) concluded that family and community factors—rather than schools—were more influential in explaining differences in long-term educational outcomes across different racial groups.¹⁰ School desegregation efforts were contemporaneously viewed as unsuccessful in promoting achievement gains and only furthering racial tensions.¹¹ Analyses by education economists were raising serious doubts that differences in education spending had any causal relationship with student outcomes.¹² Thus, policymakers were well aware that schools were in decline but had few ideas to remediate the situation.

A small opening came from the Coleman Report, however. In exploring the different schooling factors that influenced student outcomes, the authors concluded that “variation in school averages of teachers' characteristics accounted for higher variation than did all other aspects of the school combined, excluding the student body characteristics” (p. 316). In other words, teachers appeared to matter more than anything else schools were doing. Later analyses in the report (see pp. 316–19) suggested that it was teachers' education backgrounds and verbal ability that were particularly influential in explaining teachers' impacts. Hence, a seed focusing on teachers and their preparation was planted.

Meanwhile, policymakers grew increasingly worried that teacher training programs of the day were part of the problem, not the solution. In Virginia, a series of state legislative subcommittee meetings began working on teacher preparation and licensure issues in 1978 due to concerns about declining enrollment and uneven candidate quality. Contemporaneous reports showed college graduates in the liberal arts were at least as strong academically as those pursuing education majors. State policymakers grew to become narrowly supportive of a “liberal arts approach” to certifying teachers without completion of an approved training program, despite the vocal opposition of education deans in universities across the state.¹³ When the legislation finally passed in 1982, it became what we recognize today as the first state policy allowing for alternative certification for teachers.¹⁴

QUALITY VERSUS QUANTITY: PARSING THE REPORT’S RECOMMENDATIONS FOR THE TEACHER PIPELINE

With that background, *ANAR*’s publication was an electric jolt, spurring the public and school leaders out of their acquiescence of mediocrity by plotting a new course. I now turn my focus to *ANAR* itself and how its messages helped identify problems and solutions for the teacher pipeline.

First, the report’s findings, or statement of problems, on teachers echoed and further detailed the worries of the period. These included the following statements (pp. 22–23):

- Teachers were disproportionately sourced from the low end of the educational achievement distribution.
- Teacher candidates spent too little preparation time on learning content but instead focused on pedagogy.
- Teachers received uncompetitive salaries and had little input into critical education decisions.
- Ongoing subject-specific teacher shortages hampered quality instruction, especially in math and science.

Thus, the authors believed that the teacher workforce was underprepared for providing instruction aligned with their specialization fields and was undersupplied from high achievers and in specific subject areas. In other words, both the *quality* and *quantity* of the teacher workforce was deemed lacking. The report strongly implicates teacher compensation—both monetary payments and professional privileges—as being insufficient to attract the talent necessary to ensure excellence in education.

Note that as I discuss the contents of *ANAR*, I analyze its statements through the lens of their impact on *teacher quality* versus *teacher quantity*. Both the quality and quantity of teachers

available for the task are useful dimensions in producing education: higher-quality teachers can cover instructional material in less time, while more teachers can enable smaller class sizes and more personalized instruction. But keep in mind that there's an inherent trade-off between quality and quantity (all else equal); for example, increasing the quantity of the workforce is easiest if we apply few quality standards to new recruits. The quality-quantity trade-off is a useful framework for applying to the teacher workforce not only because it is a widely understood, intuitive concept but also because these are evergreen issues that frequently manifest in policy discussions about managing teachers (e.g., teacher evaluation systems, teacher shortages). Take note because this tradeoff will be a recurring theme throughout this essay.

The ANAR report explicitly recommended a set of seven teacher reforms (pp. 30-31) in response to the challenges detailed above:

- Increasing education standards for those preparing to teach and holding preparation programs accountable for candidates' qualifications
- Increasing salaries to be professionally competitive, market sensitive, and performance based, with employment decisions tied to teacher evaluations
- Offering an eleven-month teacher contract to lengthen instruction and preparation time and provide higher salaries to full-time teachers
- Developing teacher career ladders to provide opportunities for advancement without leaving the classroom
- Recruiting knowledgeable individuals from outside the classroom to help solve subject-specific teacher shortages
- Providing grants or loans to attract students into teaching, particularly in shortage fields
- Involving master teachers with the design of teacher preparation programs and supervising early-career teachers

Furthermore, the report included several other recommendations that are not directly focused on teachers but nonetheless had clear implications on teachers' work and preparing new teacher candidates in the pipeline. For example, recommendation #5 in the content section (p. 26) proposed content standards for teaching computer science to all high schoolers as part of the report's "New Basics" of the modern high school curriculum. Because computer science was not widely available to US high schoolers in 1983,¹⁵ implementing this recommendation represented a major shift in the quantity and type of new teachers demanded. In total, I count five policy recommendations that implicitly created pressure to recruit more and different teachers into the workforce and two policy recommendations that implicitly demanded higher-quality instruction.¹⁶

As evidenced by the expansive reach of these recommendations, *ANAR*'s authors believed comprehensive—not incremental—reform was necessary to improve the teacher workforce. Mirroring the problems identified above, these recommendations sought to improve instructional quality (e.g., increasing standards to teach) and draw a greater quantity of candidates into the teacher pipeline (e.g., grants for shortage fields). The report also included recommendations for how schools should compensate teachers to ensure that the teaching occupation could attract individuals in sufficient quantity (e.g., by being competitive) and quality (e.g., by being performance based).

Despite the expansive reach of the report's recommendations, the report did not prescribe a strategy for creating this new workforce. For example, beyond naming subjects that face ongoing staffing challenges, it provided little nuance about circumstances in which teacher quantity may be more important than teacher quality or vice versa. More importantly, it failed to recognize that these two dimensions are inherently in conflict—for example, a push for quality will tend to limit the quantity of people who can meet higher expectations. Improving the teacher workforce on any one dimension alone would have been difficult to achieve in isolation, but the combination of all recommendations simultaneously rendered the challenge more demanding, even impossible.

Consequently, since this key tension remained unaddressed in *ANAR*, it was not critically challenged in the policy discourse and ensuing reforms. Since both teacher quality and quantity were judged as key priorities, any reform efforts that aimed to further either goal implicitly earned the imprimatur of furthering the report's mandates. But because the mandates themselves sat in unresolved conflict, the stream of reforms that evolved were likewise caught in that same conflict, as I explore further in the next section.

DECISIVE AND UNCOORDINATED: POLICY DEVELOPMENTS AFTER A NATION AT RISK

Almost immediately following the report's publication, waves of interest in teacher pipeline reform emanated in different directions from various stakeholders, including policymakers, school leaders, and educators. Importantly, these waves moved with little direct coordination and eventually coalesced into two competing approaches to teacher pipeline reform. Before describing those differing sides, though, I quickly review the chain of events in rough chronological order.

Many state policy responses to *ANAR* were quick, especially those dealing with attracting more individuals into the profession. Though the report did not explicitly name what we today call "alternative certification," it did encourage bringing qualified people from other occupations into teaching to support hard-to-staff fields, and these policies gained momentum. As described previously, Virginia had already provided a route for noneducation majors to enter teaching, and several states quickly followed suit after *ANAR*'s publication. California developed a district intern program as a pathway to becoming a teacher in 1983, and New Jersey

and Texas enacted their own pathways in 1984.¹⁷ By 1986, twenty-three states had adopted alternative certification strategies.¹⁸

Other state policy developments took aim at reducing costs for teachers to go to college. For example, in 1985, California's legislature enacted the Assumption Program of Loans for Education, an early loan forgiveness program for students in teaching certificate programs, conditioned on working in California high-need schools for at least four years after graduation.¹⁹ The North Carolina Teaching Fellows program, created in 1986, was a service scholarship program that provided four-year scholarships for students who taught in the state's public schools for at least four years.²⁰ By 2016, more than forty states and the federal government offered some type of service scholarship or loan forgiveness program for teachers.²¹

Teacher pay was another focal point of quick policy experimentation. Average salaries nationwide had been slowly declining through much of the 1970s (after accounting for inflation), but they experienced a reversal in the 1980s, with the largest gains between 1984 and 1988, after the report's publication.²² Merit pay and career-ladder programs, which attempted to either differentiate pay or differentiate roles within teaching, gained a national spotlight thanks to then president Ronald Reagan's bully pulpit after *ANAR*'s publication.²³ Importantly, these models were believed to work in two ways: bring more people into teaching with larger expected payouts *and* attract new entrants who were top performers. Yet these theoretical predictions were given little time to surface, as all but a few of these experiments dried up quickly thereafter due to funding instability and teacher resistance.²⁴ Thus, single-salary schedules persisted in their dominance in determining teacher pay, despite a spate of post-*ANAR* experiments.

Some of *ANAR*'s ideas took a bit more time to percolate. Two different teacher educator groups immediately went to work metabolizing the recommendations from the report and developing their own detailed reform agendas. In 1986, two highly influential reports were released responding to the challenges of teacher education described in *ANAR*.²⁵ A consortium of deans representing colleges of education across the country writing under the name of the Holmes Group published *Tomorrow's Teachers* in April 1986.²⁶ The following month, the Carnegie Corporation of New York (also using teacher educators as the author team) published *A Nation Prepared: Teachers for the 21st Century*.²⁷ Both reports were similar in that they envisioned teachers—once unburdened of bureaucratic tasks—as taking on larger roles within schools, becoming the agents of knowledge curation about best practices in the field and leading professional development among colleagues. Notably, the reports offered slightly different routes to operationalize these changes. The Holmes Group saw state licensure and colleges of education as needing reform to better align with this expanded vision of teaching, whereas the Carnegie report sought to locate this authority over standards and the profession externally from state legislators and university systems. A common theme in both reports, however, was that teachers were to take on an elevated status in their schools and in the professional world broadly, which would reestablish the prominence of the teaching profession by rigorously curating teacher quality.

Several important developments originating in these reports came to be persistent features of the teacher workforce. First, the National Board for Professional Teaching Standards (NBPTS), initially proposed in *A Nation Prepared*, was established in 1987. The national standards board was founded to establish best practices and disseminate these practices in schools across the country. The organization continues today, primarily providing national board certification to experienced teachers who demonstrate excellence in the classroom.

Also, ideas connecting teacher candidate testing, graduate education, tiered state licensure, and the conferral of tenure were presented as necessary steps in improving the teaching profession in *Tomorrow's Teachers*. The state-based model of professional oversight put forward in that report (contrary to the external NBPTS model put forward in *A Nation Prepared*) served to strengthen the role of the state in establishing professional privileges, such as licensure and tenure. To be sure, many of these policies were already in practice pre-ANAR, though their implementation took on new roles in these waves of reform after ANAR. For example, teacher testing was not uncommon historically, but it was mostly adopted at the district level and often as a tool for determining which teachers to let go when reductions in force were necessary (there was an ugly racial motive to much of this testing, described in a following section). Post-ANAR, however, many states began adopting testing policies as a tool to ensure that teacher training programs were producing quality teachers for the classroom.²⁸

Teachers' unions also played a role in shaping post-ANAR reform efforts, even though they were skeptical of many of the reform aims. The report contained recommendations that both the American Federation of Teachers (AFT) and the National Education Association (NEA) had previously opposed, yet the unions did not directly voice opposition to the report or its public champions. Later, representatives from both national unions endorsed the recommendations of the 1986 Carnegie report (the NEA noted some reservations). Shortly thereafter, Mary Futrell, then president of the NEA, participated on the Carnegie Board that helped establish NBPTS. Both national unions counseled local units to take stances of moderated opposition to post-ANAR reforms to enable some experimentation (e.g., accommodating merit-pay programs), while exerting selective opposition to elements that were seen as unfair to teachers (e.g., using student test scores in evaluation systems).²⁹ It is noteworthy that unions also generally resisted differentiation within the profession (e.g., through career-ladder programs), even though these ideas were endorsed by university educators (among their closest allies), and the Holmes Group had included them in its report.

Looking back over the policy developments in the years following ANAR's publication, I see a clear delineation in the responses. The earliest experiments—in alternative certification, loan forgiveness or teacher scholarship programs, compensation reform—were responding primarily to the report's calls for bringing people into the teaching profession and keeping them there. In other words, they were attempting reform through focusing on quantity. To be sure, these efforts also sought to promote quality, but it was by attracting high-achieving people (which the teaching workforce was lacking) through either lowering barriers into the field or making the payoff of teaching more attractive. The later wave of policy responses, following the publication of the Holmes and Carnegie reports, sought to redefine the responsibilities of teachers in schools and the training that led to that new aspirational role. This group prioritized the quality

provision of instruction, the expertise that teachers provided in schools, and the qualification process necessary to develop those skills; the quantity of teachers was a secondary concern.

In other words, both camps were attempting to improve the state of the teacher workforce, but they were doing so through two different objectives. The quantity-based approach might be called reform from the “outside in,” since reform efforts from this side primarily focused on bringing outsiders into the classroom. The quality-based approach, conversely, could be called reform from the “inside out,” since it prioritized the continual development of skills starting in the preservice training period, proving those skills through licensure, and then developing those teachers into becoming master teachers.

Though these two different methods for reform started as complementary approaches to the same call for reform, they evolved with time. *ANAR* galvanized bipartisan support temporarily, but the different approaches to workforce reform expressed in the document slowly developed their own disparate sets of stakeholder groups. For example, the creation of easier pathways into teaching and bubbling opportunities for high performers enabled Teach for America (TFA) to take root in the late 1980s and flourish in the years after. TFA’s outside-in approach attracted a set of corporate philanthropists and funders who were interested in disrupting the status quo in public education. On the other side, the alignment of teacher training programs and teachers’ unions was highly critical of TFA, as their model was antithetical to their reforms from the inside out.

Over time, these different approaches and their respective camps developed into ongoing conflict that, at times, felt like a marriage that soured. The initial days of harmony and different approaches to tackle the same problem gave way to bickering, then patronizing dismissals, and then developed into feelings of disdain. In the early days of the No Child Left Behind era (during the 2000s), there may have been some pretense of tolerance on both sides, but the working relationship came to a stalemate during the Race to the Top era (2009-15) with its focus on testing, school turnaround, and teacher evaluation. And since the enactment of the Every Student Succeeds Act, it seems to me that both sides are forging their own divergent paths toward education reform.

But failing to work together would be a loss in my view, because we have gained valuable insights from the reform ideas expressed on both sides. The next two sections highlight the evidence on the policy innovations produced from these two sides.

THE EVIDENCE ON OUTSIDE-IN REFORMS

This section summarizes the research on innovations that came from this outside-in approach to reforming the teacher pipeline into the classroom: alternative certification, defraying the cost of college, and compensation reforms to attract and retain teachers. As I consider these policies, the motivating questions here are: Do these policies succeed in bringing in more

teachers? If so, what types? Do these teachers help stabilize the workforce, especially in places with weak teacher pipelines?

ALTERNATIVE CERTIFICATION

Alternative certification policies provide routes into the classroom that do not require an individual to complete a formal degree program in education prior to entry. Critically, the “alternative certification” label does not represent a single model but is an umbrella term covering many different types of programs. The design and rigor of these programs differ based on state licensure requirements (which necessitate differing amounts of student teaching, for example). Programs can also vary by providers, which can range from state colleges of education (which often feature programs adjacent to traditional training programs) to online companies (which tend to offer very different training experiences). In the paragraphs below, I offer an overview of the evidence on alternative certification, though given the variety just described, the evidence may not be representative of any single program.

Although in its infancy in 1983, alternative certification is now a major entry point into teaching, accounting for 18 percent of public school teachers’ points of entry in the 2015–16 school year, the most recent data available.³⁰ Clearly, this is a productive route based on the number of new entrants, but it’s less clear whether these additions are a net benefit to the workforce. Though prior evidence is mixed, it does suggest traditionally trained teachers have a slight edge on producing learning gains in their students in some (but not all) studies.³¹ However, the differences in productivity within routes are significantly greater than differences across routes. In other words, both alternative certification and traditional training routes can produce effective and ineffective teachers; neither route has a clear advantage based on classroom performance.³²

To be sure, there are some alternative certification programs that stand out, with TFA being a prime example. Several randomized controlled trials and dozens of other studies using rigorous empirical methods have consistently found that TFA teachers perform at levels comparable to their colleagues in reading and often perform significantly better in math. They also appear to improve students’ attendance and GPAs.³³ The literature on TFA suggests that it’s primarily the organization’s intense screening practice, which typically selects 10 percent to 20 percent of applicants, that produces these positive outcomes.³⁴

The biggest liability with hiring from alternative certification routes, however, is their high turnover rate. TFA has received much criticism on this point, as an estimated 85 percent of corps members leave the classroom within five years.³⁵ Other alternative entry routes fare better than TFA, though turnover rates among alternatively certified novice teachers are still roughly 10 percentage points higher than otherwise similar traditionally trained teachers. Survey evidence suggests these differences could be mitigated through more robust organizational support from their providers, though most providers’ ongoing support is inadequate.³⁶ Notably, alternatively certified teachers tend to fill teaching vacancies in schools with higher needs, which experience high levels of staff turnover already. Since high turnover in high-need

settings is costly to schools financially and costly to students academically, staffing with alternatively certified teachers is often considered a less-preferred option—a Band-Aid.³⁷

Not all alternative certification programs produce high turnover, though. Teacher residency programs—alternative routes sponsored by school districts that provide intensive apprentice and educational experiences for candidates—are becoming increasingly popular. The extensive training in schools and ongoing support that are built into residency programs result in significantly lower turnover rates in the first years after placement—on the order of about 20 percentage points lower—though they are costly to implement and sustain.³⁸

A 2004 report from the US Department of Education identified common elements of alternative certification programs that showed the most promise. Among these were careful candidate selection and extensive support in the training period and first year of teaching or beyond.³⁹ As I see it, TFA leans heavily on selection to produce standout performances, while teacher residency programs lean heavily on support to produce standout retention. Both are exemplars under the alternative certification umbrella. I would caution, however, against alternative certification programs that provide neither of these. A worrying development in recent years is the sharp rise in teacher candidates entering through for-profit providers. These programs have little incentive to screen candidates and often use online programs with little in-person training or support. Though there is little evidence to date on the efficacy of these programs, it seems that the model itself is a recipe for mediocre performance and high turnover.⁴⁰

SUBSIDIZING THE COST OF COLLEGE

Next, let's look at the track record on service scholarships or loan forgiveness as a vehicle to attract new entrants into the teaching profession. It is well known that college costs have risen dramatically in recent decades, along with student loan balances. Empirical work supports the notion that higher college costs discourage students from pursuing degrees that lead to low-paying fields such as teaching.⁴¹ Thus, it seems plausible that at least some new teachers are attracted to the classroom because of the availability of these programs, though exact numbers are hard to pin down. Because these programs are made widely available, the majority of those who utilize these incentives may have already been intending to pursue teaching as a career, and typically only a minority of participants report that it is influencing their decision to pursue teaching.⁴²

It is also not clear whether the availability of these programs induces high-achieving individuals into teaching, as most enter through traditional training programs and are not typically distinguished in education data. An evaluation of the long-running North Carolina Teaching Fellows program, however, is a notable exception here: those entering teaching through the selective, merit-based scholarship program outperformed their traditionally trained colleagues.⁴³

However, these scholarship or loan forgiveness programs appear to be more influential in shaping where teachers take jobs and how long they stay. Many of these programs require participants to teach in high-need schools or shortage fields. Multiple studies have found

that award recipients have a greater likelihood of teaching in high-need settings and spend a longer duration in these settings than otherwise expected.⁴⁴ Thus, it's clear these programs shore up teacher pipelines in specific areas, even if the effect on the overall teacher supply is less certain.

In their review of the research on service scholarship and loan forgiveness programs, Podolsky and Kini conclude that these programs can be effective ways to strengthen teacher pipelines, offering recommendations for increasing their impact.⁴⁵ These include covering all or large portions of college costs, conditioning benefits on teaching in high-need settings or fields, selecting strong and committed candidates, and limiting the financial consequences to those who cannot fulfill their teaching commitments. I would add to this by recommending that more-generous benefits through scholarships (rather than loan forgiveness) may optimize the impact on genuinely new entrants to the teacher pipeline, rather than subsidizing those already bound for the occupation.

REFORMING TEACHER PAY

The final area of outside-in reform that I address here is whether compensation reform—changing what and how teachers are paid—impacts the teacher pipeline. Without question, simply paying teachers more will induce more individuals into the field and could go a long way toward ending teacher shortages. There would be no need for alternative certification routes or subsidizing college costs if we were paying teachers a high enough wage. The problem with relying exclusively on teacher compensation, however, is that district employers are budget constrained in ways that make large, general wage increases prohibitively expensive.⁴⁶

Though, what if some teachers didn't need more money? After all, most difficult-to-staff vacancies are concentrated in specific high-need fields or settings.⁴⁷ If districts could be flexible in offering compensation to these weak spots in their teacher pipelines, they may be able to overcome staffing shortages with only modest increases in staffing expenses. Empirical evidence suggests such a strategy would help sustain the supply of teachers, even if the targeted pay differentials would need to be quite large.⁴⁸ This strategy is indeed very promising in reducing teacher pipeline challenges. The problem here, again, is that most districts have rigid contracts or other salary structures in place that often hinder this differentiated approach, even if it may be more direct and cost effective.

Teacher pay reform can come in many varieties beyond differential pay for select subjects or settings, and all face similar resistance due to rigid salary structures. Other criticisms of the dominant single-salary schedule are that it rewards teachers excessively for graduate degrees, defers too much compensation until teachers gain experience (including deferring too much into pension systems that too few teachers meaningfully benefit from), does not pay teachers according to their impact on students (either positive or negative), fails to adequately compensate for extra responsibilities teachers take on, and pays male teachers more for otherwise similar work. Making changes to address any one of these shortcomings could

feasibly make a beneficial impact on the teacher pipeline, though the expected impacts would differ depending on exactly what type of pay reform was pursued.

Further, even within these pay reforms, the outcomes often differ from what is predicted. For example, pay-for-performance schemes have been a popular method of experimenting with teacher compensation over the past decade. High-achieving teachers have been shown to earn higher outside wages in comparison to what they earn in schools, and thus pay-for-performance is expected to attract and retain high-performers.⁴⁹ While studies show they are associated with attracting high-achieving individuals, other evidence suggests men tend to disproportionately select into such settings (regardless of their ability to perform), which could undermine fair-compensation concerns.⁵⁰

Tensions between pursuing desired workforce objectives and pay fairness are often at the center of debates about pay reform. This does not mean that pay reform should be avoided. On the contrary, pay reform should be an important tool in shaping the teacher workforce and attracting more to the profession. But with the overlapping tensions and constraints involved, it should not be seen as a silver bullet. The key issue with pay reform, then, is for policymakers and school leaders to clearly prioritize specific workforce objectives, choose the most appropriate pay reform strategy, and then closely monitor responses on the ground to ensure that those objectives are being met.

Finally, I should also note that even though pay appears to be a strong attractant into teaching, it fades in importance once teachers are in schools. Instead, working conditions, leadership quality, and organizational support are often cited as primary reasons for keeping teachers in the classroom.⁵¹ Thus, efforts that pair teacher support with compensation reform are more likely to sustain the pipeline than a focus on salaries alone.

THE EVIDENCE ON INSIDE-OUT REFORMS

This section summarizes the research findings on policy innovations that came from the inside-out approach to reforming the teacher pipeline into the classroom. This includes efforts related to National Board Certification, aligning the teacher preparation experience with the classroom, and mentoring and induction support for new teachers. As I consider these policies, the motivating questions here are: Do these policies show evidence of developing teacher effectiveness among new teachers? And do these policies stabilize the pipeline of incoming teachers, especially in hard-to-staff settings?

NATIONAL BOARD CERTIFICATION

As described above, the NBPTS was established in response to the 1986 Carnegie report. Initially, the organization was envisioned as a gatekeeping entity for the profession, where NBPTS would assess rigor and adherence to best teaching practices for early-career teachers and supersede state-specific teacher licensure requirements.

Eventually, the scope of NBPTS's certification process shifted to focus on providing National Board Certification to experienced teachers who wanted to demonstrate their excellence in the classroom. This change was not trivial. By shifting from a focus on early-career applicants to experienced teachers, the organization had a less direct impact on the teacher pipeline. Also, by focusing on voluntary applicants (not all incoming teachers), the certification has become an important endorsement that is individually valuable to teachers, though its value to the profession and schools is less clear.

The process to become National Board certified (NBC) is intensive. Applicants must complete four different components, which include both computer- and portfolio-based assessments and are often completed over multiple years. The process currently costs a minimum of nearly \$2,000, with additional costs for retaking individual components as necessary.⁵² Clearly, the cost and process alone can be a deterrent to many teachers. Many states offer support to cover certification costs, provide bonuses for NBC teachers once certified, or both.⁵³

Research on NBC teachers has generally found that they are, indeed, relatively more effective than both unsuccessful applicants and non-applicants. The process of getting certified, however, shows no empirical evidence of enhancing applicants' classroom productivity.⁵⁴ In other words, the primary value of NBC is in its signal of individual quality, not its potential to develop skills for the workforce.

This point about signaling is important in understanding another established research finding: NBC teachers tend to be more mobile across the workforce than non-NBC colleagues. Part of NBC teachers' mobility is by design, as many states recognize the credential in license reciprocity policies, leading it to become widely viewed as a *de facto* national teaching license. Teachers already prone to mobility across state lines (e.g., military spouses) find the certification very valuable, though it's not just military spouses who are mobile. Rather, the signal of quality endows all NBC teachers with power in the job market that other teachers do not enjoy, moving them to opportunities that may personally benefit them. After earning certification, NBC teachers become more mobile and are much more likely to sort out of high-need schools toward those in low-need settings.⁵⁵

Thus, the evidence on NBPTS and NBC teachers is generally underwhelming, as far as the incoming teacher pipeline is concerned. Though the certificate does reliably identify effective teachers, the associated mobility that NBC teachers exhibit appears to erode the teacher workforce in settings that already have weak pipelines. Some states and districts offer bonuses to NBC teachers conditional on teaching in high-need settings. Evaluations of these policies suggest that teacher retention (especially among established teachers) is stronger in these high-need settings, which is a notable improvement.⁵⁶ These or similar criteria are necessary for policymakers to leverage NBC teachers to improve the supply and distribution of teachers for students at least as much as the credential personally benefits teachers.

ALIGNING TEACHER PREPARATION WITH THE CLASSROOM

Both *ANAR* and the subsequent Carnegie and Holmes reports promoted better connections between schools of education and public schools. Though the recommendation articulated in *ANAR* (master teachers in training programs) has evidently become a common practice, I do not know of any empirical studies at scale that can confirm whether and how this practice impacts new teachers. Yet an emerging body of empirical evidence has developed adjacent to this *ANAR* idea that explores the importance of the alignment between teacher preparation experiences and teachers' initial placements. This section briefly reviews the promising findings coming from this subfield.

The first key finding is that student teaching experiences can be key developmental experiences for new teacher candidates, though they appear to be underutilized in teacher training programs. For example, placing candidates into schools with high levels of collaboration among teacher colleagues helps prepare them for effective practice and enhances participant retention as they transition into their own classrooms. Yet these types of schools are underrepresented in student teacher placements.⁵⁷ An even stronger predictor of teacher candidate performance is found when student teachers are assigned to highly effective teachers (based on test score value-added estimates) as supervising mentors. Yet again, selecting mentors based on proven classroom performance is not a common practice; rather, matching student teachers with alumni teachers from the same training program appears to be far more frequent.⁵⁸ Thus, better curation of the student teaching experience represents a high-yield, low-cost policy shift in the teacher pipeline.

Second, proximity to teacher training programs is an underappreciated boost to the teacher pipeline. This finding has some easy intuition behind it: student teaching helps familiarize teacher candidates with area employers, and they become go-to candidates when vacancies open. About 15 percent of student teachers get their initial placement in the same school, and about 40 percent are in the same district.⁵⁹ The hitch is that teacher training programs are typically not located in communities that face ongoing staffing challenges; consequently, schools with weak pipelines tend not to be the beneficiaries of the supply lines. Education programs should expand their reach and open teacher supply lines to schools that face ongoing staffing challenges. The pandemic provided a unique opening, showing that with technology, apprenticeships and other formative experiences in the teacher training years can happen virtually over long distances. This is a fruitful strategy that states can encourage to connect supply lines with otherwise disconnected schools across dispersed regions.

And finally, technological advances can also help optimize the teacher training experience. A research team at the University of Virginia has spent several years developing classroom simulation models intended to provide training experiences for teacher candidates. The simulation approach offers many advantages over traditional student teaching models: it creates an opportunity for playback and repeated practice that live student teaching does not. Teacher candidates can be exposed to challenging situations that arise infrequently in real life while limiting children's exposure to poor teaching.⁶⁰ Currently, the researchers recommend the simulation exercises paired with coaching to provide feedback as a supplement to their

student teaching. Though these simulations are still in development, the early evidence suggests a lot of promise in developing quality in novice teachers for the classroom in a delivery model that can be made broadly accessible.

Overall, the evidence here suggests that teacher training experiences can be a meaningful tool in developing teacher quality while teacher candidates are in their preservice period, before they are overwhelmed by the daily demands of teaching. It's useful to contrast these promising results during the preservice period with the underwhelming evidence on professional development efforts for experienced, in-service teachers, as discussed by Thomas S. Dee in chapter 4. Investing in training at the front end clearly has the upper hand here.

MENTORING AND INDUCTION SUPPORT FOR NEW TEACHERS

The final area of inside-out reform is mentoring and related induction practices for new teachers to the workforce. This practice addresses overlapping challenges in the teacher labor market: new teachers are most at risk of leaving within their first five years on the job (this window is especially critical in high-need schools with weak teacher pipelines), and teacher survey responses consistently indicate that the lack of organizational support is a critical factor in choosing to leave a school or the profession.⁶¹

Overall, the empirical evidence on new-teacher mentoring shows generally positive results. A 2011 review concluded that induction supports, including mentoring, benefit new teachers in three ways: strengthening commitment to the profession and increasing retention, enhancing new teachers' instructional practices, and improving student achievement.⁶² A recent meta-analysis focused on mentoring preservice teachers comes to similar conclusions and argues that cognitive modeling (i.e., explicitly providing reasoning for a given teaching practice and demonstrating it) is a key driver of the value behind mentoring.⁶³

Echoing the findings of the student teaching experience above, studies on new-teacher mentoring also emphasize the importance of choosing good mentors. Those with a record of effective teaching, who make their implicit processes of teaching explicit, and who are adequately prepared and given time for the role are the most successful in offering support for new teachers.⁶⁴ Similar findings about the importance of effective coaches are also seen in studies of instructional coaching, which is essentially mentoring for all teachers (regardless of whether they are new).⁶⁵

With all this promising evidence, one might ask, why isn't mentoring and induction done more consistently across schools? The biggest hindrance is the lack of available resources, primarily time—both for the new teacher and the mentor—to devote to the task. Ironically, new teachers in high-need schools that could benefit the most from effective mentoring are less likely to have the time and other resources to support a quality coaching experience. In the conclusion, I offer some ideas that I believe can help overcome these constraints.

RACE AND INCOME CONSIDERATIONS AMONG STUDENTS AND TEACHERS: MISSED OPPORTUNITIES IN 1983

While acknowledging all the policy activity that ANAR prompted on the teacher pipeline, I also want to briefly reflect on a key element that the report omitted. Namely, the report failed to recognize the role of socioeconomic inequalities among students and teachers. These omissions relegated discussions of class and race to a lower status, limiting the integration of these considerations in policy solutions in the wake of the report.

First, the report failed to recognize how important race and income were in dictating students' access to public school resources. Perhaps it was assumed at the time of writing that existing gaps in access were waning with ongoing school integration efforts and thus fading from public consideration. However, with hindsight, it's clear that race and income continue to matter, even forty years later. Importantly, even as financial resources have narrowed over recent decades (a welcome development), gaps in access to instructional resources like teachers continue to lag.⁶⁶

The consequence of this omission is that the report failed to explicitly say that the largest deficiencies in teacher quantity and quality are in high-need, under-resourced school settings. This finding has been documented in multiple districts and states.⁶⁷ Outside of high-need contexts, teacher vacancies tend to be manageable and rarely compromise academic offerings in schools. But these settings, which disproportionately serve students of color, are frequently beset by high teacher turnover. Often, schools must cope with limited teacher supply by hiring from weak applicant pools, employing long-term substitutes, or reducing class offerings in a subject.⁶⁸

A proper remedy, in my view, would be to explicitly identify these settings as particularly understaffed both in quantity and quality and to offer a strategic approach to developing both dimensions in the workforce over time. I offer such a strategic approach in the following section.

Second, the report missed the opportunity to recognize the importance of racial factors in the teacher pipeline. Black teachers were systematically removed from the workforce during the decades following the 1954 *Brown v. Board* decision. They were removed through racially administered reductions in force, forced rehiring for Black teachers, and were pressured out through offering lower wages and fewer professional privileges. Qualified Black teachers were purged from public schools, making room for less qualified White teachers to replace them.⁶⁹

A particularly insidious method for removing Black teachers from the classroom, which continues to have relevance for the teacher pipeline today, is the use of teacher competency tests. The National Teacher Examinations (NTE) program was the Educational Testing Service's predecessor to the Praxis exams commonly used as licensure tests. The widespread adoption of the NTE across (primarily southern) states occurred once policymakers learned to exploit racial differences on the test as a pretext to provide lower wages to Black

teachers or force them out of their positions. In other words, the tests became a preferred method to indirectly discriminate against Black teachers.⁷⁰

The racialized history of gatekeeping in teaching needs to be acknowledged and confronted, even though the NTE has been replaced with the Praxis and other licensure exams. Also, the injustices in this history are not limited to Black teachers only but have impacted the representation of Native American, Hispanic, and Asian groups too. Even if modest progress has been made in recent decades, the racial diversity of the teacher workforce does not align with the racial makeup of the students they serve nor with other professional occupations.⁷¹ The pipeline into teaching continues to advantage White teachers over teachers of all other racial and ethnic backgrounds, and teacher licensure testing is a major chokepoint.⁷² In other words, teacher licensure testing is a policy that deserves closer scrutiny.

Research over the past several decades has now come to conclude that the lack of racial diversity among teachers is hindering public schools and students. A more racially diverse workforce has been shown to improve a variety of outcomes, ranging from test scores to school funding allocations. Students of color stand to benefit most from a more representative teacher workforce, and White students can benefit too. It is for these and many other reasons that my coauthors and I argued in our recent book that “teacher diversity is teacher quality.”⁷³ Of course, hindsight is twenty-twenty, but *ANAR* failed to recognize that teacher diversity could be a key asset and that teacher testing was a liability that prevented the teacher workforce from reaching full productivity. In making this omission, *ANAR* squandered potential progress on narrowing long-standing achievement gaps among students and building a more inclusive American society.

AMERICAN EDUCATION IN 2023 AND LESSONS FROM THE PAST

The state of public schools in 2023 is, on the surface, very different from public schools in 1983. We have just recently witnessed schools shutting down for months on end to limit the spread of COVID-19. The consequences of these shutdowns have been a major setback in achievement for students, significantly widening racial and income-based achievement gaps for the first time in decades.⁷⁴ Schools have also become new battlegrounds in culture wars. Clashes initially started by debates around pandemic reopening decisions and masking policies evolved into explosive school board meetings clashing around systemic racism in US history and LGBT accommodations in schools.⁷⁵

These developments appear to have impacted the teacher pipeline in multiple ways. First, teachers are frontline workers helping to aid children’s learning recovery, and signs point to increased burnout and elevated turnover in the wake of the pandemic. Second, the culture wars appear to have had a chilling effect on teachers.⁷⁶ These challenges are layered on top of a teacher pipeline that was already weakened before the pandemic hit, prompting some analysts to warn of a “perfect storm” forming in the teacher labor market.⁷⁷

The pipeline into teaching is objectively worse than ever, with 161,000 completers of teacher training programs in 2020–21, a decline of more than 40 percent from the 1970 peak in the number of completers at 284,000.⁷⁸ These teacher graduates are now serving a student body that is more than 10 percent larger today than it was in 1970.⁷⁹ The growing cost of college is also a widely perceived barrier for entry into the profession, especially for people of color who are more burdened by debts to get through school. Yet enrollment in colleges has also slowed, offering little reprieve for the state of the teacher pipeline.

Under the surface differences, though, I also observe several parallels between the state of American education in 1983 and the state in which we find ourselves in 2023. In 1983, like today, there was also growing dissatisfaction with the current state of public schools and student enrollments were dropping, ostensibly signaling lower confidence in public schools. In 1983, the halcyon days of the late 1950s and 1960s, when schools were responding to the challenge of Sputnik and organizing around the space race to show economic superiority against communism, were not long ago. Today our golden days might be the initial years following the enactment of No Child Left Behind—when accountability began to focus attention on performance in schools, achievement gaps were falling, and graduation rates were trending upward. It was clear then, as it is now, that our public schools are far from returning to that level of performance in our recent past.

Another fascinating parallel comes from a recent study by Kraft and Lyon on the state of the teaching profession since the 1970s.⁸⁰ Looking at historical trends in teacher prestige, interest in the profession, teacher preparation, and teacher satisfaction, the authors conclude that the teacher workforce is now near or at historic low points. The last time we were in this position was in the early 1980s, right around the release of *ANAR*. In this period, there was a quick upsurge in public support for and interest in the profession, though the authors could not pinpoint exactly what the catalyst was back then. Perhaps part of this turnaround was new messaging about the nobility of the teaching profession (championed by those reforming from the inside out). Or perhaps part of the new interest in teaching was due to easier access into the profession and visible pay reform efforts (thanks to the outside-in reformers). Regardless of the source, though, what it suggests is that a much-improved prognosis for the teacher pipeline may be around the corner.

Looking back and learning lessons from the past can help chart a productive way forward. As with the *ANAR* period, schools today have similar pressures to do many things at once, such as promoting learning recovery, dealing with teacher shortages, expanding teacher diversity, and professionalizing the workforce. All these things are valuable, but these multiple demands may divert focus and attention from completing any one of these objectives. If we respond as we did previously, trying our preferred model of reform everywhere and dismissing all alternative efforts, then both sides of the teacher quality and quantity debate will continue to work at cross purposes. Yet these different approaches can be complementary if we can find a way to productively work together.

Building on the lessons from the past, I offer recommendations in two forms as I conclude. The first is a proposed strategy that attempts to build both quality and quantity through context-specific prioritization. The second is a more aspirational idea that attempts to build capacity into the ranks of college graduates broadly.

BUILDING QUALITY AND QUANTITY THROUGH CONTEXT-SPECIFIC PRIORITIZATION

First, if we want to build quality and quantity simultaneously, we need a strategy to get there. If we can let go of the need to treat all teachers the same, regardless of context or specialization, then perhaps we can create individual pockets of progress that can be protected, then vetted, then expanded and emulated on a broad scale.

In practice, we must develop a systematic plan for workforce management that is sensitive to workforce needs on the ground. The most important context here—the one conspicuously omitted from *ANAR*—is school settings that serve high-need student populations. A secondary context for consideration could be difficult-to-staff subjects such as math, science, or special education; however, I view subject specialization as a second-priority category. For the argument that follows, I focus on high-need settings for simplicity, but the same logic extends to high-need specializations.

The primary concession here is that we recognize that these schools, by serving high-need student populations, have difficulty attracting and retaining teachers. Consequently, these schools will spend disproportionate amounts of money and time recruiting, interviewing, and onboarding new teachers. Even if these schools had the excess capacity to invest in building teacher quality, the high levels of turnover lower the expected return on that investment. In other words, these schools have a problem with teacher quantity first.

I propose that policymakers and school leaders prioritize efforts that build and sustain teacher quantity in these settings. The outside-in options will be most readily applicable. For example, monetary bonuses for teachers or generous service scholarships conditioned on working in high-need settings would be an excellent way to shore up the workforce. Alternative certification pathways will bring more candidates to these settings, though because these teachers tend to exhibit greater turnover and can lead to instability, I caution against relying too much on them. Also, recognizing the variety within alternative certification providers, if alternatively certified candidates are considered, I encourage school leaders to prioritize candidates from programs that invest heavily in selection (like TFA) or ongoing support (like teacher residency programs); avoid candidates coming from programs that do neither.

Some inside-out reforms can also provide valuable benefits to workforce stability and should be considered in these settings too. For example, connecting teacher training programs with otherwise disconnected schools can increase the teacher supply. Bonuses for NBC teachers in high-need settings may be useful, as evidence suggests the retention of quality colleagues could have positive benefits on the turnover of younger, non-NBC peers.

Prioritizing quantity does not mean that we ignore quality in these schools entirely, but we should look to building quality only once policies supporting quantity are firmly in place. In fact, some of the inside-out ideas could help move the needle on both quality and quantity. For example, investing in a strong mentoring program with effective teachers in these schools can lower turnover (and hence the quantity of new teachers needed) while also developing teachers' instructional skills.

The big surprise is that the resources to pursue these policies are within reach for most high-need schools already, but they simply need to be repurposed. Currently, class sizes in high-need schools are smaller than they are in low-need schools in the same districts. Though exact numbers vary across states and school levels, the average high-need high school employs nearly one additional teacher per one hundred students than non-high-need schools in the same district, nationwide.⁸¹ In other words, high-need schools are *consistently overdemanding teacher quantity* in the places that most struggle with anemic teacher pipelines.⁸²

Simply allowing class sizes to rise to meet those in low-need settings would save money on teacher salaries that could be repurposed to fund bonuses for teaching in those settings, generously reward mentors for new teachers, or pursue other policies focused on stabilizing the workforce. And let's be honest, the last teachers hired in high-need schools are most likely to be underprepared and least likely to stay in the profession. So not hiring them is itself a small step toward workforce stability. Even greater cost savings could be realized by allowing class sizes to rise even further.

But what about the benefits of small classes? Yes, it is the case that smaller classes promote greater learning and personalization, and these benefits are observed in both the year of exposure and over the long term. But the same thing is also true of excellent teaching, and then some. Studies have consistently shown that the benefits to maintaining teacher quality outweigh the benefits of lowering class size (increasing quantity) when the marginal teacher is of lower quality.⁸³ This trade-off almost certainly holds in high-need schools, whose marginal hire is more likely to be a long-term substitute than an experienced, well-qualified hire.

I acknowledge that the status quo of small class sizes may be useful to teachers. Perhaps smaller classes make classroom management easier or otherwise reduce teacher burden. However, remember that low class sizes come at the cost of workforce stability in schools already overburdened by this issue. There are often easier, lower-cost ways to reduce teacher burden (e.g., hiring more instructional aides, an often-overlooked resource) than hiring more teachers.⁸⁴

Outside of these high-need settings, where the quantity of the teacher workforce is not a pressing demand, we should prioritize quality-focused enhancements to the pipeline. This is where the promising inside-out ideas become the policies of choice. These are the contexts where new-teacher mentoring with effective mentors should be the default. We should be focusing on providing enriching experiences to enhance the quality of the new teachers in these schools, rather than tweaking things like pay or loan forgiveness to attract better teachers from the outside.

The overarching idea here is that both the inside-out and outside-in approaches offer useful ways to reform the teacher workforce. It's not clear that either side has a monopoly on the right approach here, and if we insist on doing all of one but not the other, we will just continue to snuff out opportunities for success. But if we prioritize the outside-in policies in high-need settings where quantity is most constrained and the inside-out policies where we want to build capacity in the existing workforce, we are more likely to succeed in simultaneously improving both quantity and quality.

BUILDING A CADRE OF TALENT READY FOR TEACHING

This final recommendation to bolster the teacher pipeline focuses on expanding the reach of service scholarships. As discussed in the review of outside-in ideas, the intuition here is that, since we have good reason to believe the cost of college is deterring young people from teacher training, defraying the cost of college could be a powerful attractant. Though service scholarship and loan forgiveness programs have become common across states, most offer relatively modest benefits (typically a few thousand dollars per year of teaching). I recommend leveraging this tool much more aggressively to build out the teacher pipeline and perhaps even build excess capacity.

I recommend state policymakers set up a menu of scholarship options for college students that ties scholarship aid with taking a recommended core battery of education classes. I'll consider each of these elements in turn.

First, what is meant by "a menu of scholarship options"? I recommend trading off more generous scholarship support with differing levels of commitment to teaching and teaching in high-need schools. Recall that one of the potential issues with service scholarship or loan forgiveness programs is how punitive consequences are for not fulfilling the program's teaching commitments. Providing a transparent menu of options for students while in their undergraduate years allows students to select into the level of aid they want with the level of commitment they are comfortable with. For example, those ready to take the education classes and commit to four years of teaching in a high-need setting would qualify for maximum aid (e.g., free tuition), while those who do not commit to any teaching but simply take the core battery of education classes receive the minimum aid (say, a 20 percent reduction in tuition costs). A tier or two in between these extremes offers a middle level of aid while requiring some teaching but offers flexibility on the length or the requirement to teach in a high-need setting. Perhaps the program could offer an option to convert teaching commitments after entering the workforce where one year in a high-need setting receives equal credit to two years teaching in a low-need setting. Also, selectivity could be built into the menu of options: for example, all students with at least a 3.0 high school GPA qualify for the program, and those with a 3.5 or higher get an extra 5 percent discount. Aid amounts or selectivity criteria could also be used to attract more candidates in specific subjects (e.g., offering especially generous aid and lowering selection criteria for math and science majors and doing the opposite for oversupplied specializations like elementary education).

The specifics could be tweaked, but the main idea is that generous aid plus commitment levels that students can choose from will attract many more people to education and a career

in teaching. Note that, by design, some people will benefit from minimal aid, taking education classes without committing to teaching. This is an acceptable trade in my view, since it gets people engaged with education in a meaningful way. Note that taking education classes alone is a commitment, and in the process, students can explore their own interests in teaching. Some students may find themselves willing to increase their commitment to teaching, while others may realize teaching is not a fit for them; both outcomes can be seen as a positive for the teacher pipeline. And taking the long view, many people pursue other careers for a time before choosing to enter teaching at a later point. This training would be a beneficial head start that can facilitate entering through alternative certification routes at a later point in time.

Now let's consider the "recommended core battery of education classes." Courses in this core should be foundational education courses aligned with the student's intended major, be scientifically based, and provide opportunities for the student to get some early live practice experiences in front of students (even simulated ones). The National Council on Teacher Quality's ongoing Teacher Prep Review project evaluates programs across the country on their course requirements and the syllabi of these courses to judge their alignment with best practices.⁸⁵ Also, UTeach is a program for attracting math and science majors into teaching; it has a model that emphasizes content mastery, foundational pedagogical learning, with early practice experiences.⁸⁶ Both of these resources and others can help steer policymakers' judgments about what belongs in the battery of courses. Also, to avoid undesired institutional variation, the composition of the core battery should be determined by a state committee and be consistently offered across all training programs in the state.

Importantly, an expansive scholarship program like this is intended to build capacity for teaching in a broad range of students, directly building pressure into the teacher pipeline. Given the uneven college debt burdens faced by people of color, I anticipate this program could be especially useful in attracting teachers of color into the profession. Importantly, since teachers of color disproportionately staff high-need schools, this would be a major boon to teacher supply in these settings.⁸⁷

I acknowledge this scholarship idea would require significantly more resources than are currently allocated to the teacher pipeline. But with the deficient quality and quantity in the teacher pipeline currently, a surge of investment into it is probably the only way out of the predicament.

A STRONGER AND MORE ROBUST TEACHER PIPELINE COULD BE JUST AROUND THE CORNER

In summary, the teacher pipeline is inadequate now and will continue to be a drag on schools—especially those serving high-need students—without significant policy intervention. But I am optimistic that a much healthier pipeline is within reach. We don't need to think of new solutions; we just need to deploy the ones we have with more strategy and purpose. These lessons from the past offer a road map to get there.

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HESI PRACTITIONER COUNCIL RESPONSES

Essays in this series were reviewed by members of the Hoover Education Success Initiative (HESI) Practitioner Council. For more information about the Practitioner Council and HESI, visit us online at hoover.org/hesi.

I appreciated the approach of reflecting on “strategically combining promising reform efforts” and implementing the reforms in “context-dependent ways.” While the historical examination was interesting, I also think some of the contextual reforms could be further explored. For example, the section on aligning teacher preparation with the classroom has great promise if current evidence-based programs are outlined. One such model is the professional development school, which has been modernized to have candidates work directly in schools at all phases of their program with dedicated personnel from the district mentoring, advising, and coordinating.

How mentors are trained, supported, and matched is a key factor in the success of beginning teachers. I also appreciated the focus on missed opportunities for equitable access to effective teachers for all students. Equity labs are one way to help districts and schools understand the “who” of the student-teacher relationship and how getting qualified teachers who represent the community can aid in outcomes.

Finding ways to keep teachers in the classroom part time while giving them other opportunities for leadership has aided Utah in keeping some of our most effective teachers in the classroom. Endorsement for instructional coaching with state support is another strategy that is paying dividends in teacher capacity and retention. I feel that we are beyond the surface level and have discovered related contextual strategies that are working. I think the three pillars of quality, quantity, and context are spot-on and we should highlight programs that are really working.

—Dr. Sydnee Dickson, state superintendent of public instruction for Utah

This paper provides both rich historical context and actionable steps for the future to address the complexities of teacher recruitment and retention. The author acknowledges the need to address both the quantity and the quality of our teacher workforce—doing one without consideration for the other would be a “loss,” and I agree. While progress has certainly been made, it is clear there is more work to be done. Understanding that the teacher is the single greatest school-level factor that impacts student performance, future investments should

ensure that all children—especially those who struggle the most—have access to highly skilled and trained educators.

After spending several months with business leaders who are helping solve teacher recruitment and retention issues in our state, I have learned that it is challenging to get buy-in from stakeholders who may question the “step and lane” model. And, while teachers certainly desire and deserve an increase in salary, most tell me that more than monetary fulfillment is needed to keep them in the classroom. The stressors they cite have escalated significantly since *ANAR* was published.

I couldn’t agree more with the paper’s conclusion that significant policy intervention is needed; the policies presented remain relevant and must be strategically prioritized, and a much healthier pipeline is within reach. I would also suggest that for true comprehensive reform to occur, we must examine or at least acknowledge where policy levers fall short in addressing some of the top concerns of today’s classroom teachers.

—Dr. Margie Vandeven, commissioner of education, Missouri

NOTES

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