



TRANSFORMING TEACHING

Dedication

IN HONOR OF

We dedicate this report to Ron Thorpe. Ron was the President of the National Board for Professional Teaching Standards, before cancer took him from us much too soon. Ron laid out a vision for what teaching could be, a vision that was grounded in deep respect for teachers and teaching, but also a sense that the field could serve teachers much better than it currently does. Ron saw a world in which there was a coherent pathway for learning to teach, one in which new teachers were gradually inducted into a complex and demanding craft under the watchful and supportive eye of experienced teachers. He also saw a world in which teachers were able to take more control over their domain, where their unquestioned skill in doing such critical work won them the kind of respect that is owed to professionals of all stripes. Ron has shown us the way forward; it is up to us to make his inspiring vision a reality.

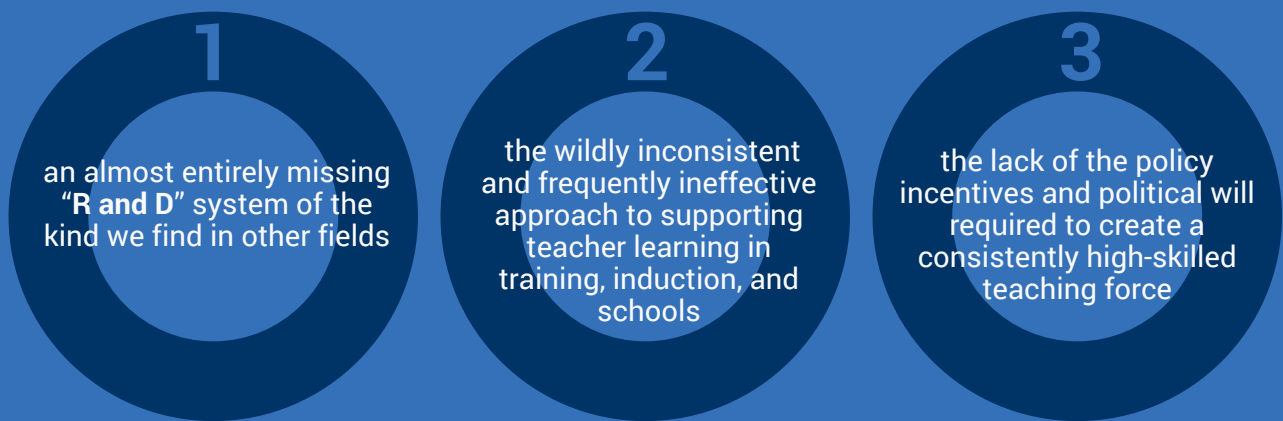
From Quicksand to Solid Ground

BUILDING A FOUNDATION TO SUPPORT QUALITY TEACHING

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in consultation with Robert Ettinger, Kelly Kovacic, and Doannie Tran ¹

ABSTRACT

Educators and policymakers want to improve the quality of teaching, but the teaching profession is not organized to build teachers' knowledge, skills, or expertise. While some individual elements of such a system exist, they do not work together to meaningfully affect instructional practice at scale. In particular, efforts to produce quality at scale are hamstrung by:



This combination results in a situation in which student learning depends more on individual teacher skills than on the quality of the teaching profession as a whole, and students' access to skilled teaching remains highly stratified by race and class. These problems are only becoming more acute as expectations for students rise: the more we want all students to be able to think, reason, and contribute to democracy, the greater the costs of not building a foundation to support the development of teachers and teaching. Drawing on interviews with 60 sector leaders and 25 expert teachers, and the vetting of initial ideas with several hundred educators, this white paper outlines the nature of the problem, develops a vision of what a better world would look like, and identifies a dozen design challenges the field needs to solve to move from here to there. We conclude that addressing these challenges will require significant changes in policy and practice, together with the creation of new institutions to serve critical functions that are currently no one's responsibility.

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Supporters of Transforming Teaching

The undersigned education leaders and organizations have graciously lent their support to this paper. Their endorsement reflects broad agreement with the problems and critical design challenges identified herein. It does not, however, necessarily suggest full alignment on every detail of the paper or its wording.

In endorsing this paper, the undersigned also affirm the critical importance of coming together across organizations and political divides to build the kind of profession we believe our teachers and students deserve.

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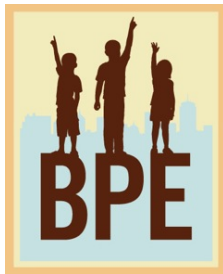
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Why We Need a System that Supports Quality Teaching

EXECUTIVE SUMMARY

The past two decades have seen unprecedented demands on our educational system. From No Child Left Behind to Common Core, we are now asking our educational institutions to generate two results they were never designed to produce: equitable outcomes for all students, including racial minorities and high-poverty students for whom, historically, demography has largely been destiny; and excellence, with all students educated to think, reason, communicate, create and problem-solve in ways that will enable them to participate effectively in 21st century life.

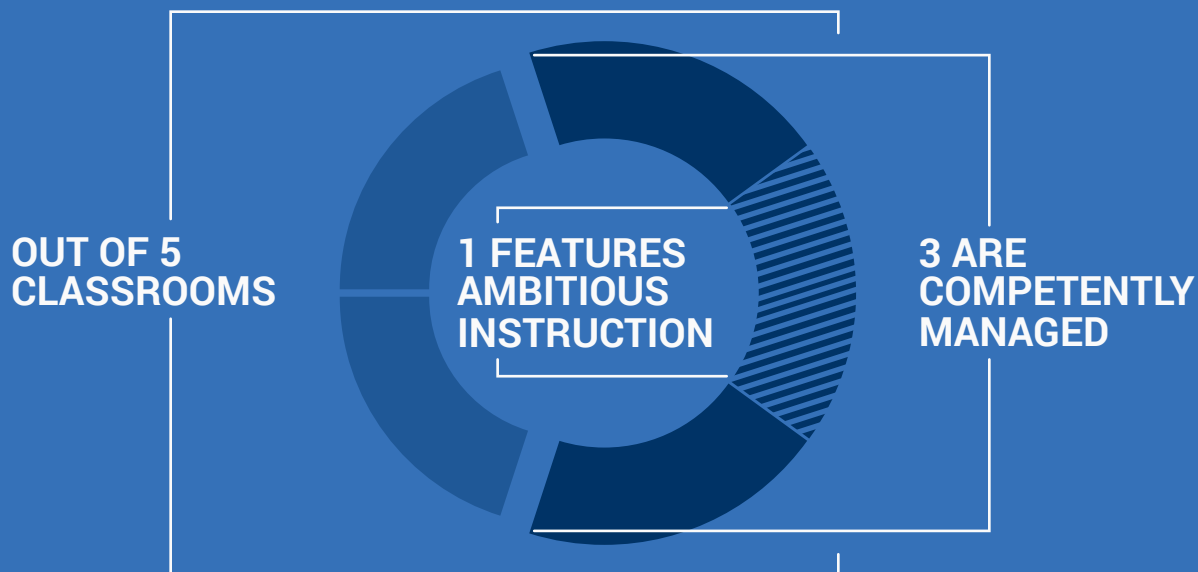
The problem is that while the demands have changed, the underlying systems have not. While this is true of virtually every aspect of American public education, this paper focuses particularly on the question of teaching and the systems which support it. Our contention in this paper is that teaching in America today is a “non-system,”² a haphazard consequence of a series of historical events, not something anyone would have designed if the goal was to give every child in America a great teacher. Individual teachers are often exceptional, but they are exceptional despite, not because of, the systems in which they work. We were able to conceal the costs of this non-system for many years because the expectations for what students would know and be able to do were quite modest. However, as we have raised our expectations, the system we did not build has come back to haunt us—it is as if we are expecting a skyscraper to sit on a foundation of quicksand. And, as is always true in America, the costs of our failures are greatest for our most vulnerable students, who get our least experienced teachers and our least stable schools.

The statistics are familiar but bear repeating. Racial achievement gaps between students begin early and widen over the time students are in K-12 schools. The United States scores at the middle of the international pack on the Program for International Student Assessment (PISA), ranking 17th in reading, 20th in science and 27th in mathematics on the latest assessment. National Assessment of Educational Progress (NAEP) scores have improved over time, particularly in elementary and middle schools and particularly in mathematics, but reading scores for 17 year-olds have been essentially flat since the 1970s. Particularly relevant for this paper, when classified by proficiency levels, roughly 2/3 of students score at levels of basic or below on the NAEP, compared to roughly 1/3 who test at the proficient and

² Some of our respondents to early versions of this paper argued that what we have is less a “non-system” than a system that does exactly what it was designed to do. Specifically, the American school system came into being at the beginning of the 20th century at a time when its goals were to provide a modest education to white students, to Americanize immigrants, and to exclude students of color. The problem, from this perspective, is that expectations have changed but the systems have not. We are sympathetic to this viewpoint. We decided, however, to retain the term “non-system” to name the way in which current arrangements are not coherent or functional from the perspective of accomplishing the goals that we say we seek.

advanced levels. (This is true in both reading and math, for both 4th and 8th grade students.) This pattern suggests that our schools are better at helping students with basic skills than higher order thinking, a fact which is consistent with the middling PISA results.³

The reasons for these results clearly go well beyond teaching. America's internationally high rates of poverty and history of racial subjugation are clear contributors to these results. But at the same time, there is substantial room for improvement within the classroom. The largest ever video study of classrooms concluded in 2012 that while more than 60 percent of classrooms were competently managed, only 1 in 5 featured the kind of ambitious instruction we seek for our students.⁴ A recent study by Education Trust reinforced these findings, concluding that only 13 percent of the 1,500 student tasks assigned in six urban middle schools were "highly cognitively demanding."⁵ Many studies over the years have also documented that more advantaged students get more demanding learning opportunities (both across schools and across tracks within schools), a finding which brings together the need to improve teaching with the need for greater equity.⁶



³ On PISA, see <http://www.oecd.org/unitedstates/PISA-2012-results-US.pdf>. On NAEP, see <http://nces.ed.gov/nationsreportcard/subject/publications/main2013/pdf/2014451.pdf>

⁴ Tom Kane and Douglas Staiger. (2012). *Gathering feedback for teaching: Combining high-quality observations with student surveys and achievement gains*. Bill & Melinda Gates Foundation. Retrieved from www.metproject.org

⁵ Liana Heitin, "Classroom Assignments Fail to Meet Higher Bar, Study Says," *Education Week, Curriculum Matters Blog*, September 2nd, 2015, accessed at http://blogs.edweek.org/edweek/curriculum/2015/09/classroom_assignments_fail_to_meet_common_core_higher_bar_study.html

⁶ Jeannie Oakes, *Keeping Track: How Schools Structure Inequality* (New Haven: Yale University Press), John Goodlad, *A Place Called School* (New York: McGraw Hill, 1984), Ted Sizer, *Horace's Compromise* (Boston: Houghton Mifflin, 1984).

Teachers themselves also tell us that there is something awry. Large majorities report that their training had little classroom applicability, and that most of what they learned came from colleagues on the job. Many teachers bemoan the flat structure of the profession and the lack of opportunities to help their colleagues without losing touch with the classroom. A highly cited recent report, *The Mirage*, provides statistical evidence to support teachers' longstanding belief that most existing professional development is highly ineffective.⁷ Studies of teacher retention find that many teachers leave the classroom within their first five years, meaning that many training dollars need to be spent again, and that many potentially talented teachers are lost from the classrooms.

Our contention is that much of this picture should be understood in the context of the missing system for supporting quality teaching in America. We suggest that the components of what it would take to consistently support quality practice are both individually broken and do not fit together in a coherent or integrated way. Over the past two years, we interviewed 60 leading organizational actors and 25 expert teachers, scoured the literature, and pressure-tested our initial ideas against the responses of several hundred educators. From that process, the following three dimensions of our non-system came to the fore:

First

Research and Development (R&D).

We are missing a system to produce, vet, disseminate, and get into use knowledge about quality teaching. Plainly put, there is no one responsible for producing actionable, practical knowledge about teaching. Researchers write mainly for other researchers; teachers with knowledge have few incentives and little support to share it. We lack good mechanisms to evaluate whether knowledge is of any quality or of any use to teachers. Nor are there intermediaries that share knowledge with teachers in a user-friendly or accessible format. In short, there is not an R&D system in education in the way that there is in other fields.

Second

Social Learning. Knowledge is useful only if there are processes for getting it into use. Teaching as a field is hamstrung by the absence of good training and substantive modes of induction for new teachers, by the lack of quality professional development for experienced teachers, and by the failure of schools to support collaboration and continuous learning. There is also little vertical alignment across the system, which means that the ways in which teachers are trained may not match their induction, their professional development, or their school-or district-based experiences. Making progress in this arena will require both significant improvements in each of these elements and greater alignment across them.

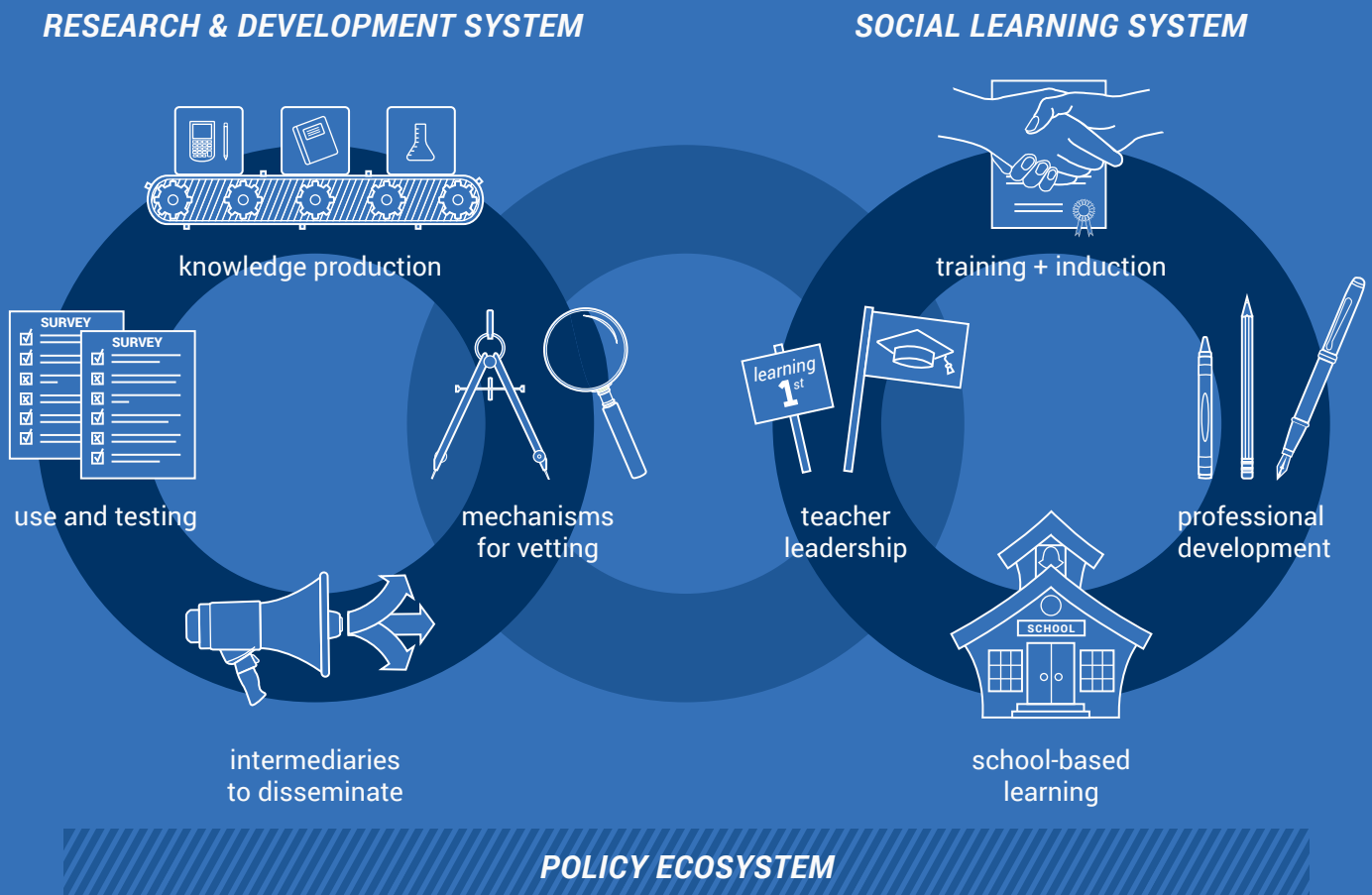
Third

The Broader Ecosystem.

The policy environment does not offer the kind of incentives and infrastructure necessary for the success of the first two dimensions. Nor does the political environment consistently support these priorities. Making progress on the above challenges requires the larger environment to support differentiated roles for teachers, create standards to anchor this work, and support the development of the elements described above.

⁷ The New Teacher Project, *The Mirage: Confronting the Hard Truth About Our Quest for Teacher Development*, The New Teacher Project, 2015.

The figure below shows what a better world might look like with respect to these systems and their interactions.



Of course, as we detail in more length in the paper below, it is important to recognize that these problems are the most visible manifestations of a much deeper set of issues. The absence of an R&D system that produces practical teaching knowledge needs to be understood in the context of education schools that emphasize theory building and distance themselves from applied research on teaching. The absence of a social learning system needs to be understood in the context of the low appreciation for the complexities of teaching, and the economic incentives to limit public spending on teacher training and induction. The absence of policy support for professionalizing teaching needs to be understood in the context of the public's lack of regard for teachers and teaching, as well as in the context of the legacy of slavery and the persistence of socio-economic inequality, which, in combination, result in a concentration of quality teachers in advantaged communities and little pressure to improve teaching en masse. Finally, the absence of coordination across these three arenas needs to be understood in the context of a system that has historically been highly decentralized.

At the same time, making our system function as we envision it would not only be critical to achieving equity and excellence in education, but would also reshape teaching into a much more attractive field. Clear and specific training would help teachers succeed in their first few years.

Greater initial success would increase retention rates. Passing a rigorous bar to become a fully credentialed teacher would increase respect for the profession among prospective teachers, policymakers, and the public. Schools in which teachers could collaborate and grow would be attractive to bright people seeking to do intellectually engaging work. And giving a signal place to master teachers in such a field would give young teachers something to aspire to, and indicate that the best in the field would be compensated in ways that are on par with other professions.

We are not the first to raise these issues. What we say here builds on the intellectual foundation created by many scholars over many years.⁸ There are also a number of organizations, including teacher training institutions, districts, charter management organizations, residency programs, research collaboratives, and other actors who are leading the way forward in many of these areas. We hope the design challenges below can build upon these efforts.

From Here to There: 12 Design Challenges

This is a huge agenda. Tackling it will require the combined energies of many actors across our highly decentralized system. To that end, rather than offer recommendations, we have identified a dozen “design challenges” that we see as key to making progress on these issues. Our organization, the Transforming Teaching Project at the Harvard Graduate School of Education, will convene people to work on these challenges, but success will largely depend on whether or not a much larger group of actors takes them up as their own.



⁸ In particular, our thinking has been deeply shaped by the work of Katherine Boles, John Bransford, David Cohen, Suzanne Donovan, Jeff Duncan-Andrade, Richard Elmore, Joshua Glazer, Kris Gutierrez, Gloria Ladson-Billings, Dan Lortie, Susan Moore-Johnson, Ernest Morrell, Donald Peurach, Jon Saphier, Catherine Snow, and many others too numerous to list.

BUILDING THE R&D SYSTEM

Design Challenge 1: Put the “D” in R&D; invest in developing design-based interventions:

As Anthony Bryk and others have pointed out, there is much more investment in educational research (both basic and more applied) than in educational development. Investing in development would mean designing sets of classroom materials and routines that address our highest priority instructional needs and which, in turn, would be piloted, iterated, refined, and shared. Work might also flow in the other direction: groups might try to develop instructional activities or routines for arrays of schools and classrooms, and then use continuous vetting and refining processes to improve the reliability and consistency of these lessons across classrooms.⁹

Design Challenge 2: Develop a system for vetting curriculum materials and knowledge about teaching: There is no shortage of classroom materials, potential lesson plans, and ideas about teaching floating around the Internet. Not surprisingly, teachers currently experience this glut as a cacophony of materials of widely varying quality. This challenge calls for the design of a system that would enable teachers to quickly and easily access high quality materials aligned with their subject, grade, and teaching philosophy. Such a system might also compensate teachers or researchers who were able to post materials that others found widely useful.

Design Challenge 3: Build a set of intermediaries that would deliver evolving knowledge about teaching: These kinds of intermediaries are staples of research and development systems in other sectors, but they are few and far between in education. To meet this challenge would require finding a source of consistent funding, presenting research and resources in a user-friendly format, and staying in close touch with teachers and school leaders to ensure that what was being offered was useful.

BUILDING THE SOCIAL LEARNING SYSTEM

Design Challenge 4: Create vertically aligned pathways that run from teacher preparation through induction and continue into ongoing school-based learning. Part of what has been challenging about the American non-system of teacher preparation is that there is no continuity from what one learns in teacher preparation to what is expected during induction, to the ongoing goals of one’s school or district. Coherence across the early stages of a teacher’s professional life could happen by aligning much of teacher learning with an expanded version of the Common Core, which might serve as the anchor for all of this work. Or it might happen by licensing networks of schools that specialize in a particular approach to run teacher training, induction, and schools in a consistent manner.

Design Challenge 5: Build “Teaching Hospital” Schools: Both research and experience suggest that teachers learn much of what they know in schools (as opposed to preparation

⁹ William R. Peneul and Barry Fishman. “Large-Scale Science Intervention Research We Can Use.” *Journal of Research in Science Teaching* 49:3 (2012): 281-304.

institutions) from more experienced teachers. Currently, student teachers' assignment to mentor teachers is often haphazard; while preservice teachers can learn a great deal in any classroom setting, those who train under an expert teacher emerge much better prepared than those who train under an average or below average one. To maximize student teachers' preservice learning, the obvious next step in this process is to develop schools that in certain respects resemble teaching hospitals. In these institutions, new teachers would get a chance to learn cutting edge practices, and master teachers would choose to be there because they wanted to teach new teachers – a higher step on their career ladder. In turn, K-12 students who attended these schools would have the cost of being taught by new teachers offset by having teachers carefully supervised by master teachers; they would also have access to the latest ideas from both research and practice. In addition to being sites of exemplary practice, these schools would also have a lab-school function, in that they would be places where new design-based research could be carried out.

Design Challenge 6: Support school leaders and districts in creating environments that prioritize adult learning, particularly with respect to content, pedagogy, and race. Effective training will work only if it is reinforced by ongoing opportunities for site-based professional learning. School leaders need to be trained and supported in creating environments which prioritize teacher-led opportunities for continued adult growth and learning. In turn, districts need to create the incentives, supports, structures, and systems that would support schools in becoming places of continued growth and improvement. Creating opportunities for adult learning is particularly acute given rising expectations for schools. Teachers need opportunities to extend their own knowledge of content, even as they expect students to engage in more complex work. They need chances to collaborate as they develop lessons and classroom cultures to support deeper inquiry. Finally, in a nation where the student population is already majority-minority but the teaching force remains 83 percent white, teachers of all races will need to build and extend their skills in developing productive relationships with students across lines of difference.¹⁰

Design Challenge 7: Leverage the opportunity created by the Common Core: In one sense, the Common Core State Standards create considerable opportunities for the kind of improvement in teaching we seek: they provide clear incentives for existing teachers to make their teaching practice more ambitious. But everything we know about past reforms suggests that unless teachers lead and own this effort, it will end up being seen as yet another top-down reform with uneven results, at best. Relatedly, the scale of the challenge is such that it will require significant unlearning for many teachers; making progress will entail building the space, support, and models that such a qualitative shift in practice requires.

BUILDING THE POLICY AND POLITICAL SYSTEM

Design Challenge 8: Make teaching affordable, attractive, and selective. Countries like Finland are able to recruit top college graduates into the field of teaching in part because their

¹⁰ See https://nces.ed.gov/pubs2009/2009324/tables/sass0708_2009324_t12n_02.asp

graduate education is state-funded. In Finland, promising teacher candidates do not have to make the same financial sacrifice as they do in America—foregoing the promise of a high-earning career and taking on debt in order to be trained to do so. Ideas like a GI bill for teachers, income tax forgiveness for teachers, or redesigning the flow of state and/or federal funding streams devoted to teacher development are promising approaches to recruiting talented teachers from all backgrounds—especially those from low-income communities and communities of color. Increasing the attractiveness of the field would also enable policymakers to be more selective about who become fully certified teachers, which would bring us more into line with top PISA performers around the world.¹¹

Design Challenge 9: Create the recruitment pathways and policy changes needed to increase the population of teachers of color. Across the country and in most cities, the teaching population remains overwhelmingly white while the majority of students are of color. Research has documented the importance of culturally responsive teaching and curriculum, of forging connections between educators, families and communities, and of the power of students having role models who look like them. While increasing the percentage of teachers of color is only one part of the solution, it is a critical element. Expanding opportunities for career-switching, increasing teacher recruitment from undergraduate institutions with high percentages of students of color, and changing the tuition model to make teacher training affordable for more candidates of color are all promising approaches to explore.

Design Challenge 10: Create career ladders for teachers across the United States. Critical to reshaping the teaching profession is creating opportunities for teachers to develop different roles at different levels of pay based on interest and demonstrated levels of expertise. Creating opportunities for master teachers, in particular, to anchor the training of new teachers and lead professional learning is key to developing a field that draws on teachers' expertise and gives newer teachers something to which to aspire. This is not a new idea; we already see such systems in Shanghai, Singapore, Iowa, New York, and elsewhere; the challenge will be to spread such systems and make sure that their criteria for advancement are aligned with contemporary visions of student learning and good teaching.

Design Challenge 11: Build next generation competencies, assessments, and school models to support next generation teaching: There is no point in erecting a system around yesterday's competencies. Students going forward will be expected both to master basic skills and to think critically, solve problems collaboratively, and develop a range of other skills and competencies. These shifts will also entail changes in what teachers need to know and be able to do—including a shift from a one-size-fits-all to a more differentiated approach to teachers' skill development. While the Common Core is an important first step, there are a range of other competencies that are important and worth pursuing. The challenge for the field is to develop

¹¹ More selective does not necessarily equate to having higher test scores in college or attending more selective colleges. There is a wide range of attributes that are important for good teaching that should be assessed in the selection process. The idea is, rather, that if we were able to make teaching a more attractive field, we would have a larger pool of applicants to choose from, and it would be more possible to uphold high standards in licensing and certification.

the competencies, assessments, and school models that would help to organize and anchor many of the other elements of the system described above.

Design Challenge 12: Build a powerful political coalition to consistently advocate for these priorities, with teachers playing a leading role: Some of what we need is less new thinking and rather more political support for the best of existing ideas. Some of what is described above, such as differentiating roles for teachers, raising standards for entry, or developing more careful clinical training, are ideas that have been around for a long time. What is needed here is a powerful political entity that could speak with credibility to the issue of professionalizing teaching. Such a coalition might include business leaders, university presidents, civic leaders, and others who would consistently advocate for such priorities. In the long run, while these allies are critical, teachers need to organize to take more control over their sphere if many of these changes are to be achieved.

A Vision of Change

Is it really possible to build a different kind of educational system? While the pull of inertia is strong, and the current system remains in place because it works well enough for the most advantaged students and parents, there are some reasons to think that change is possible.

In May of 2015, we brought together many of the leading actors in this space to discuss an earlier draft of this paper. The convening included leading representatives of teachers (Randi Weingarten of the AFT and Rebecca Pringle from the NEA, Joe Doctor from the National Board for Professional Teaching Standards), key reform organizations (Ben Jackson from The New Teacher Project, Norm Atkins from the Relay Graduate School of Education, Steven Farr from Teach for America/Teach for All), as well as representatives of states, districts, education schools, Deans for Impact, residency providers, researchers, and many others. We had a spirited discussion of the issues raised here; in particular, attendees wanted more attention paid to issues of purpose, and to the underlying policy and political incentives that currently preclude much of what is recommended here. But those amendments notwithstanding, there was wide agreement about the basic diagnosis of the problem, and agreements as well that addressing the design challenges posed here would provide a big part of the solution. Rather than the polarization that plays out in the newspapers between traditional and reform actors, there was a sense among participants that there are huge challenges that we are all facing in different ways, and that we all have a role to play in developing the solutions. There was also a sense that many organizations are already working on issues, creating an ever-thickening base to build upon.

We also held a second, more practice-focused design convening, which featured a wider array of education actors, including some additional representatives from the above organizations, but also teachers, principals, and many others from across the domain. In the long run, progress will come only if we see a mixture of what one of our participants described as a “top down, bottom up, and sideways on” approach to improvement.

More concretely, we essentially see two large inter-related dimensions to change: one about politics and one about scale. Politically, addressing many of the challenges we describe above will only come about if there is sustained advocacy for them, not only in Washington but also at the state and district levels. This advocacy needs to be coupled with a public education component—at a fundamental level, most voters don't realize how hard it is to teach well, and thus have not yet been persuaded that many of the fixes described above are not simply “nice to haves” but actually necessities if we are to produce the kind of education system we seek. One advantage of such a professionalizing teaching agenda is that it would benefit everyone's children, but would be particularly beneficial for the most disadvantaged students, who currently are served by the least experienced and qualified teachers.

Even if there were widespread political support, there is the question of how we might generate change across fifty states and 13,500 districts. One huge advantage of this agenda is that there is already tremendous demand for it—every district in America has to have a plan for inducting and training new teachers; every district spends money on professional development; every district wants its schools to be organizations which promote adult learning. Thus we can imagine a process in which a small number of districts work intensively to develop research-backed gold standards for how to perform certain functions, which would then be quickly copied by others. We have already seen a similar process in the relatively rapid spread of residency programs across districts since Boston created its teacher residency program in 2003.

Change is complicated and its mechanisms cannot be fully mapped in advance. But the idea that every student should have a highly skilled teacher should be as American as apple pie. We dare a political candidate to get up and argue for untrained teachers, irrelevant knowledge, and wildly inconsistent classroom practice. The question is whether we will act on what we know are the right things to do.

CONCLUSION

The need to turn teaching into a respected profession has been part of the education discourse for at least a hundred years. It is widely recognized that we need to build the structures and processes to support adult learning, just as we do for children's learning. But the field has been slow to act, and longstanding structures and institutions have proven difficult to change. We are now confronted with an unprecedented demand, for reasons of equity and economic imperatives, to prepare all of our students in ways that we never have before. This is the moment to realize the promise of the teaching profession, and to build the kind of field we should have built a century ago. There is widespread agreement on the nature of the problem and the nature of a better world; the work that remains is to take collective action to move from here to there.

FULL PAPER

In the pages that follow, we lay out our argument in more detail. We draw on the literature, our own observations from the field, and 85 interviews with sector leaders and expert teachers. We begin by identifying what we mean by a “knowledge base” and “expertise” in teaching. Then we describe three major problems that would need to be solved to build a more coherent system. We next sketch what a better world would look like, drawing on examples of existing institutions that address some of these challenges. We show how this analysis motivates the above list of design challenges, and conclude that the field needs to do this design work to get from the non-system we have to the system we aspire to establish.

Knowledge and Expertise in Teaching

Research suggests that good teaching builds on multiple types of knowledge.¹² The first and most basic is content knowledge. Teachers cannot teach what they don’t know; as they guide students toward more complex investigations, it is critical that they have comfort and familiarity with their discipline. The second is pedagogical knowledge. This is a multidimensional field, ranging from rudimentary questions of classroom management to the creation of authentic and stimulating classroom experiences—designing good lessons and tasks, developing formative and summative assessments, and building a classroom climate of trust, support, and challenge. It includes both specific teaching techniques and the ability to design an arc of learning. The third is pedagogical content knowledge, specific knowledge of how to teach a particular content area. This includes knowledge of the likely steps learners will need to take to reach understanding in a domain, likely misconceptions they will have, and ways to remedy these misconceptions. Teaching reading is a particularly telling example of

pedagogical content knowledge, because even people who have significant substantive knowledge (how to read and analyze texts) and pedagogical knowledge (how to teach) can feel woefully underqualified to teach reading in the absence of specific knowledge about how people learn to read and how to teach this critical skill. The fourth is knowledge about human development, which is critically important to understanding what kinds of classroom experiences are likely to be appropriate and engaging at specific ages.

*Teachers
cannot teach
what they
don’t know...*



¹² Linda Darling-Hammond and John Bransford, eds. *Preparing Teachers for a Changing World* (San Francisco: Jossey Bass, 2005).

And the fifth is knowledge of cultural contexts, which is critical for developing instruction and relationships that are respectful and likely to be effective. Particularly given that the majority of the nation's public school students are people of color and the nation's teachers remain predominantly white, teachers must develop effective ways of engaging and instructing students who come from cultural backgrounds different from their own.

Decisions about what types of knowledge to prioritize in a teacher's development depend on a number of factors, including the students' age and the overall educational vision of particular types of schools. For example, teaching calculus requires significantly more content knowledge than does teaching multiplication, whereas teaching reading to elementary school students requires more pedagogical content knowledge than does teaching AP English. One implication might be the need for significantly more substantive content knowledge requirements for high school teachers, and considerably higher pedagogical content knowledge expectations for elementary teachers. Educational vision and purpose are also critically important: the kind of pedagogy that prevails in a carefully managed "no excuses" classroom differs greatly from the flexibility and autonomy that prevail in a project-based classroom.

Since teaching is an applied skill, the ways in which bodies of knowledge are integrated into

practice are critical. Research suggests that expert teachers, like experts in other domains, are able to quickly see patterns and have a repertoire of moves to respond to them in real time.¹³ Successful teachers are also able to build relationships with diverse sets of learners, laying the foundation upon which academic instruction can take place. Experts are also able to render parts of their practice routine in ways that require little attention, freeing their conscious minds to focus on more complex questions. Expert and novice teachers differ on a range of dimensions, including how well they manage classes, what kinds of questions they ask, what kinds of tasks they assign, and how their students perform on a range of outcome measures.

Unfortunately, research also suggests that experience does not guarantee expertise. In fact, many teachers plateau after only a few years, becoming more skilled at classroom management by their second or third year, but showing marginal growth towards the more complex aspects of teaching practice.¹⁴ We view this finding as consistent with the non-system that currently envelops teachers and teaching: there is no systematic, collaborative, ongoing learning for teachers after their initial preparation. The absence of any support that might guide them on the path from "good to great" (or, more precisely, "competent to ambitious") means that most teachers learn only from their own experiences or from fortuitous conversations with colleagues down the hall, rather than being systematically inducted from novice to

¹³ Michelene Chi, Robert Glaser and M.J. Farr, eds, *The Nature of Expertise* (Hillsdale, NJ: Lawrence Erlbaum, 1988); James Cimino, "Development of Expertise in Medical Practice," in *Tacit Knowledge in Professional Practice*, eds. Robert Sternberg and Joseph Horvath (Mahwah, NJ: Lawrence Erlbaum, 1999) 101-119, Carol Livingston and Hilda Borko, "Expert-Novice Differences in Teaching: A Cognitive Analysis and Implications for Teacher Education," *Journal of Teacher Education* 40 (1989): 36-42.

¹⁴ Steven Rivkin, Eric Hanushek, and John Kain, "Teachers, Schools, and Academic Achievement," *Econometrica*, 73:2 (2005), 417-458

more expert practice. Encouragingly, some recent research suggests that plateaus are not inevitable— that the right kinds of school-based, supportive learning communities can help teachers continue to grow in their practice after the first three years.¹⁵

Recent years have also seen the growth of schools dedicated to particular pedagogical models, raising the question of whether there is one knowledge base or several. The answer to this seems to be both: there are a number of fundamentals that are relevant to virtually any kind of teaching—knowing the subject, developing a lesson arc, assessing students and adjusting approach accordingly, building relationships with students—and then there are also a number of more specific techniques that are relevant to particular modes of teaching. We think that assessing how much knowledge is general and how much particular is an open question, and, therefore, it is also an open question whether people would be better off being trained exclusively in environments with distinctive pedagogical visions or should receive some general training before undertaking the more specialized form.¹⁶

By proposing a knowledge base for teaching, we do not imply that teachers should be controlled by that knowledge or work from a scripted curriculum. Skilled practice, in any field, draws on shared knowledge that allows

thoughtful practitioners to see patterns, develop responses, and act in ways that are technically and ethically consistent with the best of what is known in the field. As with other professions, we see professionalism in teaching as working in concert with collective standards developed by the field rather than in untrammelled autonomy.¹⁷ Discretion is key, but it comes in applying the general knowledge that the field has developed to specific situations.

For example, if a pilot is landing a plane, many particular factors—such as the time of day, the nature of the runway or weather conditions—require very specific adjustments, but these decisions are made in the context of the more general set of knowledge, tools, and routines that applies to all landings and that is second nature to the pilot.



¹⁵ John Papay and Matthew Kraft, “Can Professional Environments in Schools Promote Teacher Development? Explaining Heterogeneity in Returns to Teaching Experience,” *Educational Effectiveness and Policy Analysis* 36:4 (2014): 476-500.

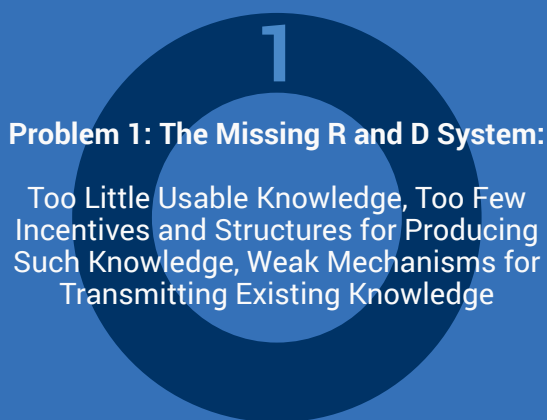
¹⁶ We explore the idea that teaching could develop in “plural” tracks rather than through one body of knowledge in Jal Mehta and Steven Teles, “Professionalization 2.0: The Case for Plural Professionalization,” in *Teacher Quality 2.0* (Cambridge: Harvard Education Press, 2014).

¹⁷ The collective vision of educational professionalism is discussed in more detail in Jal Mehta, *The Allure of Order: High Hopes, Dashed Expectations, and the Troubled Quest to Remake American Schooling* (New York: Oxford University Press, 2013).

PROBLEMS THAT NEED TO BE SOLVED TO BUILD A SYSTEM THAT SUPPORTS QUALITY TEACHING

Above, we referred to three dimensions of what is needed to build and support quality teaching. They are *Research and Development (R&D)*, social learning, and *the broader ecosystem*. In this section, we will describe the problems with our current system in detail.

Problem One: The Missing Research & Development System



Any system which aims for consistent quality must initially be anchored in a knowledge base that helps to guide the work.¹⁸ However, a number of features of teaching make it more difficult to develop the kind of knowledge base that we see in fields like medicine and engineering.

KEY FEATURES OF EDUCATION THAT SHAPE THE NATURE OF USABLE KNOWLEDGE

Teaching is a social enterprise, involving human beings who have their own ideas about what they want to learn and when. For that reason, it will never have the kind of “if you employ X strategy, then you will get Y result” that you see in the physical sciences. Students’ interests and level of prior knowledge, the chemistry among students, the classroom climate, and many other factors play into whether a given lesson lands or falls flat. (Anyone who has ever taught the same lesson to two classes knows this full well.) These interactions and the dynamic nature of teaching also make it difficult to study in ways that large-scale modern research favors. It is difficult to isolate variables because good teaching brings together many factors, and it is difficult to perform randomized control trials because there is no way to freeze into place the intervention to be tested since good teaching requires dynamic responses to unpredictable interactions. UCLA Professor Jim Stigler observed that much research on teaching:

... fails to understand that teaching is a complex system. There’s no one variable, or even an additive group of variables that are going to

¹⁸ James Hiebert, Ronald Gallimore, and James 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.

determine whether teaching is of high quality. People still keep trying to find those variables. That's just not the way teaching is. Teaching is a system.

Relatedly, the fact that teaching involves multiple students at once, rather than individual clients, differentiates it from other fields and makes teaching a particularly complex enterprise. As Magdalene Lampert of the Boston Plan for Excellence points out:

Teachers don't interact with students one at a time, like doctors and lawyers do with their clients. They're interacting with a whole bunch of kids at once and so what I do with one student impacts the rest of the students because they're all watching. That's very different from other kinds of professions.

Teaching is complex not only because it relies on managing a number of interacting dimensions, but also because its success is fundamentally dependent upon the commitment of its clients. As University of Michigan professor David Cohen argues in *Teaching and Its Predicaments*, teachers can teach but only students can learn, and whether they do so is heavily dependent upon their motivation, engagement, and effort in the process.¹⁹ This is a feature of all social professions (hence the old cliché that a therapist can't help a client unless the client wants to change), but it is particularly acute in K-12 schooling because students are required by law to attend and thus have not necessarily chosen to be there. Thus an effective knowledge base has to communicate not only how to teach substantive content but also how to engender the motivation students need to master it.

Another important feature of teaching is that it is highly context-specific. What works in a four-year university may not work in a community college. Teaching about busing in Boston, for example, is different from teaching about busing in Alabama. Lee Shulman, President Emeritus of the Carnegie Foundation for the Advancement of Teaching, believes that a knowledge base for teaching is unlikely to look like those developed for other professions:

Teaching is not the kind of endeavor for which a codified knowledge base of the sort that you get in engineering or in certain areas of clinical medicine... is likely ever to be developed. The more we know about teaching, I think, the more we understand how very, very context-specific and context-bound it is. Why, for example, an awful lot of the things that you [the interviewer] got very smart about as a teacher in the San Diego area, working with a particular population of kids that was recruited to the UCSD lab school that you led, don't generalize as codified knowledge. You couldn't codify what you learned, and hand it to another teacher, and assume that it was going to work equally well there.

¹⁹ David Cohen, *Teaching and Its Predicaments* (Cambridge: Harvard University Press, 2011).

The implication of Shulman's point is not that there cannot be any general knowledge about teaching, but rather that any system that seeks to draw on this base must take into account the ways in which it would need to be adapted or varied across different contexts.

A final important feature of education is the fierce debate about its purpose. Some believe education should create thoughtful citizens, others see it as a means to foster growth and creativity, while many see education as a means of helping students develop basic skills or preparation for work. Each of these commitments implies different outcomes for students and thus different ways of evaluating the nature of good teaching practice. Common Core may provide an opportunity for more unity than has existed historically, but even if more citizens agree on standards, there will still be wide gulfs in views about good teaching practices. The implication for building a knowledge base is that it needs to be capacious in its aspirations, with different branches documenting what good practice looks like within different traditions. So, for example, while we suspect there will always be a debate about the value of lectures or the value of group work, there can be increasing knowledge about how to give effective lectures or how to structure meaningful group projects.

POSSIBLE BUT RARE: EXAMPLES OF USABLE KNOWLEDGE ABOUT TEACHING

These features of teaching make it challenging, but not impossible, to produce usable knowledge. Four examples show the possibilities: Jon Saphier's book *The Skillful Teacher*, John Hattie's meta-analysis of research on high quality teaching practices, Doug Lemov's book *Teach Like a Champion*, and the developing repository created by the Expeditionary Learning network of high quality projects and the supports needed to create them. These examples have ways of addressing some of the questions raised above. Saphier's *Skillful Teacher*, for example, synthesizes decades of work to offer an integrated framework of the classroom as a system with a variety of elements that are important for success. Lemov and Expeditionary Learning work within highly defined value-driven systems that organize learning, a no excuses model in Lemov's case, and a project-based one in the case of Expeditionary Learning. Because these larger systems have clear pedagogical orientations and ways of engendering motivation and commitment, specific practices are anchored within systems that enable their success and use. Hattie's meta-analysis is a rare example of drawing on academic research to reach quantifiable conclusions about strategies for teaching, thus suggesting that it is at least possible for research to contribute to the process of improving teaching.

However, these examples are few and far between. Our interviews revealed a remarkable paucity of usable, accessible knowledge on questions that were critical to the respondents. As Ron Berger of Expeditionary Learning said:

"There are hundreds of books about teaching but very few that teachers actually use regularly in their practice. There are a just a few books that seem to provide concrete strategies that teachers tend to gravitate to—books like Jon Saphier's work, Doug Lemov's *Teach Like a Champion*, Harry Wong's *The First Day of School*, and *Responsive Classroom* books.

There remains a great need for useful concrete guides for teachers about instruction, particularly ones that go beyond simply classroom management."

Berger's sentiments were echoed by many of the teachers we interviewed. They consistently said that when they began teaching they looked for resources, ideally those oriented towards the age and subject that they were teaching, and were frequently disappointed that there was so little available. As one career-switching teacher told us in a quote representative of the experiences of many early career teachers:

When I transitioned as a mid-career into the teaching profession, I looked hard for something that I was sad to discover didn't actually exist. I was looking for some kind of a list or playbook that detailed the very best teaching strategies. I looked online and found nothing of the sort. More disheartening, I spoke with veteran teachers; they had never heard of such a thing. In the end, I made do with an award-winning list my district had put together in an effort to summarize best practices from education research. Even still, over the years as I grew as a teacher and became more familiar with research and proven practice, I found that list and other ones like it to be woefully insufficient.

IT'S NO ONE'S JOB: THE ABSENCE OF INCENTIVES FOR PRODUCING, VETTING, OR DISSEMINATING USABLE KNOWLEDGE

Why isn't there more usable knowledge for teaching? The most straightforward answer is simply that it is not anyone's job to produce it.²⁰ University-based researchers might be logical candidates—they are trained in research methodologies and in writing up findings for different audiences—but a variety of incentives work against professors who might want to engage in such work. Good teachers have limited capacity, given their other work demands, to disseminate the knowledge they've generated over the course of their careers. School administrators often struggle to share effective practices among their own teachers, let alone to extend that knowledge to teachers not under their jurisdiction. With few people available to take charge of this important work, it is not surprising that little knowledge about teaching becomes part of the field as a whole.

Researchers who wish to study teaching practices must first contend with the lack of prestige accorded to the study of teaching.²¹ Jeannie Oakes, Director of Educational Equity and

²⁰ Jal Mehta, Louis Gomez, and Anthony S. Bryk, "Building on Practical Knowledge: The Key to a Stronger Profession is Learning from the Field," in *The Futures of School Reform* (Cambridge: Harvard Education Press, 2012).

²¹ Ellen Lagemann, *An Elusive Science: The troubling history of education research* (Chicago: University of Chicago Press, 2000).

Scholarship at the Ford Foundation, points out that teaching is “one of the lowest status topics within even schools of education.” Jim Stigler described how this problem is compounded by the fact that researchers are rewarded not for solving problems but instead for “publishing studies that are read by other people in their field.” The result is studies that are, in the words of Philippa Cordingley, Chief Executive of the Center for the Use of Research & Evidence in Education, “shaped by the interest of researchers, not the deep concerns of teachers about their learners.” Research that is prized within the academy also tends to be concerned with questions that develop theory or answer broad questions (i.e., what’s the value of whole class vs. small group instruction?), whereas teachers often need much more fine-grained information (i.e., how can a small group discussion be made more effective?). Anthony Bryk, President of the Carnegie Foundation for the Advancement of Teaching, observed that while research that contributes to theory might also be applied to real problems teachers face, “the connection between more basic research knowledge and... practice improvement, that connection is too weak.”

A more promising vein for researchers is active collaboration with practitioners.²² There are a number of examples of this, including Project Zero’s Teaching for Understanding Framework, Jeff Duncan-Andrade’s Teaching Excellence Network, the Strategic Education Research Partnership, and the collaborations that produced the National Writing Project. But these are the exceptions to the rule—institutional incentives generally pull researchers away from these types of “practical” collaborations.²³

Then there is knowledge which comes out of practice. It has frequently been said that there is no problem in education that hasn’t been solved by some teacher somewhere. The problem is that these practices are not visible; there is no way for other teachers to access this knowledge. As Dan Lortie wrote 40 years ago in a statement which remains true today:

“Nor do we find [in education] an equivalent to the centuries of codified experience encountered in law, engineering, medicine, divinity, architecture and accountancy; no way has been found to record and crystallize teaching for the benefit of beginners. Law students have their precedents; and engineers have exemplars dating back to ancient Rome; physicians recall Galen and centuries of empirical treatments, and clergymen can pore over thousands of published sermons and

²² Cynthia Coburn and Mary K. Stein, eds. *Research and Practice in Education: Building Alliances, Bridging the Divide* (Rowman and Littlefield, 2010).

²³ Our analysis here has some deep parallels with the excellent work of the Strategic Education Research Project (SERP). See M. Suzanne Donovan, *A Proposal for Integrating Research and Teacher Professional Preparation: Innovation and Induction Corridors* (SERP Publications, 2014), and M. Suzanne Donovan (2013), “Generating Improvement Through Research and Development in Education Systems,” *Science*, 340 (6130): 317-319.

and exegeses.... But what meaningful record exists of the millions of teaching transactions that have occurred since the City on the Hill?"²⁴

Teachers or principals who may have developed effective practices might consider sharing them, but, in the words of Ron Berger, they are "too busy being principals and teachers to try to figure out what they're doing that works," and "nobody else has time to figure out why these principals or teachers are so effective."

If part of the problem is lack of incentives to *produce* the knowledge, a related problem is the lack of mechanisms for this knowledge to be *evaluated*. Harvard Graduate School of Education professor Catherine Snow describes this problem: "Teacher practices get developed but there is no mechanism to distinguish and vet them. There is no way to elevate and replicate. Even if there is some evidence that something works, the chaos and lack of respect for teacher professionalism almost inevitably undercut this knowledge." Part of the challenge here is that the main mechanism that exists for vetting knowledge is scientific peer review. This standard is oriented more to the knowledge's *truth* value than to its use value—i.e., whether a given strategy, technique, or approach was useful to other teachers trying to teach similar students. There are some nascent efforts to enable teachers to rate (and even buy) one another's ideas, but there is nothing organized on the scale of the scientific enterprise.

The result is that teachers today have much available information but little way to sort it for quality or relevance. James Hiebert, professor at the University of Delaware, describes how, without a curated source of information, teachers are left with the impossible task of navigating through mountains of available materials on their own:

...If you call up Common Core lessons online, you'll get 5,000 lessons you can look at. That's as useful as having zero because there's just no way a teacher can handle that kind of thing. If any vetting has occurred, it's been very inconsistent. Teachers have no way of knowing when they look at something like that whether it might work in their classroom or not.

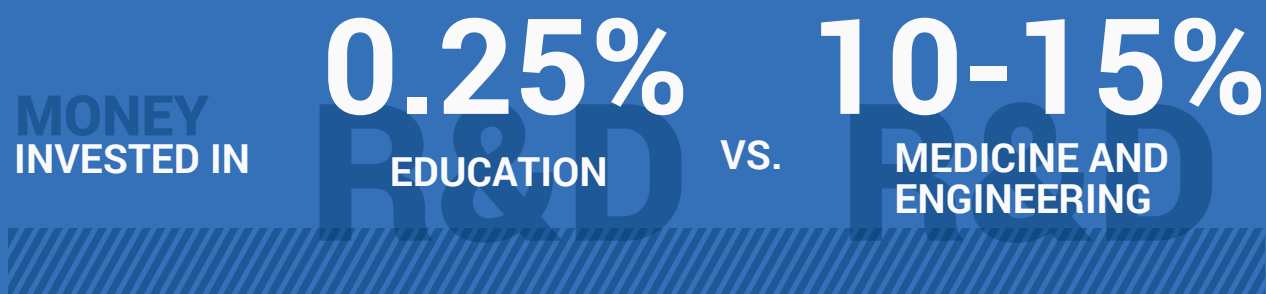
Another missing link in the chain is a set of intermediaries that might sort through research and practical knowledge, and provide user-friendly information about quality and relevance for teachers. Such a service is an instrumental part of the R and D system in medicine but does not exist in education.

In the absence of such intermediaries or sorting mechanisms, a number of teachers we spoke to reported the difficulties they have in trying to navigate the plethora of available resources since they don't have the time to search independently for relevant research. One teacher noted that, after receiving their master's degrees, teachers no longer even have access to the

²⁴ Dan C. Lortie, *Schoolteacher: A Sociological Study* (Chicago: University of Chicago Press, 1975), p. 58-59.

one existing source of peer-reviewed research – academic journal articles. While some might expect teachers to jump through hoops to pursue learning, Joan Richardson, Editor-in-Chief of Phi Delta Kappan, argues that, “It’s inappropriate, it’s unfair to tell teachers that they have to go do all their learning after they’re done with their workday. That’s not feasible.” Given that few teachers have time during work hours for substantial development activities, it is unlikely that they will make use of codified knowledge.

Finally, as Anthony Bryk, Louis Gomez and others have noted, education is a field that does not invest in R and D, and particularly gives little emphasis to the “D” in “R and D.” Overall, Bryk and Gomez estimate that education spends $\frac{1}{4}$ of 1 percent on R and D, compared to 10 to 15 percent in medicine and engineering.²⁵ With the partial exception of commercial actors, virtually all of the money, time, and experimentation that is devoted to education is focused on the research side, towards research goals of building theories or testing existing interventions.. There is comparatively little investment in developing a particular set of classroom activities will work with a given set of students. While there has been increasing interest in recent years in “design-based research” and other variants of more applied innovative research efforts, these remain the exception to the rule.

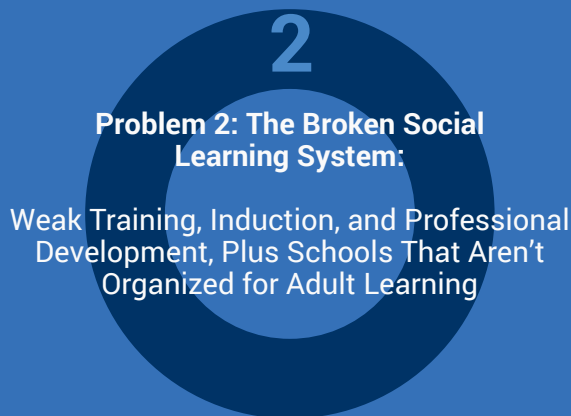


In sum, there is a missing system where there should be a system of educational “R and D.” The absence of mechanisms to produce knowledge for teaching practice (both research knowledge and practical knowledge), to vet this knowledge, and to establish intermediaries that would reliably disseminate this knowledge means that the field, as a whole, is at the mercy of the knowledge of individual practitioners and of whatever help they manage to find along the way. In individual cases, this can lead to excellent practice, but the absence of mechanisms to share such practice means that the field as a whole cannot improve over time. It also means that individual students are at the mercy of the teachers they happen to get.

²⁵ Anthony S. Bryk, A. S. and Louis M. Gomez. “Ruminations on Reinventing an R&D Capacity for Educational Improvement.” Pp. 181-206 in *The Future of Educational Entrepreneurship: Possibilities of School Reform*, edited by F. M. Hess (Cambridge: Harvard Education Press, 2008).

Problem 2: The Broken Social Learning System

Having a knowledge base would not be of much use without strong mechanisms to get that knowledge into action. Teaching is a complex skill, and it requires extensive modeling, apprenticeship, feedback, and ongoing social learning.



Our respondents described significant weaknesses at each stage of the teacher pipeline: initial teacher training, induction, professional development, and learning within schools. Not only are the individual elements weak; they are frequently not vertically aligned to produce coherent learning over time. Since these problems are familiar, we discuss them only briefly.

Education schools generally do not effectively prepare teachers for the practical work of teaching. As a result, James Stigler observed, “Most pre-service training is not particularly useful.” The reasons for this are numerous and familiar, beginning with the fact that becoming “useful” would require, as David Cohen says, “people on the faculty who were expert teachers and teacher educators” and who would “be able to step into a classroom and do a very good lesson at the drop of a hat.” Such professors are hard to find. Norms of faculty autonomy also preclude faculty from working together to develop a coherent approach to instructing teaching, and the separation between the academy and K-12 schools persists even in teacher education. There are a number of exceptions, of course, such as Bank Street College, the STEP program at Stanford, and the teacher education program at the University of Michigan, but, on the whole, universities remain unable to mount carefully designed and well-regarded clinical programs.

Critics of education schools have been even more pointed about their failings. Kate Walsh of the National Council on Teacher Quality, argues that education schools “...pointedly rejected the notion that they should train teachers. They embraced a whole set of priorities, which are best described as ambiguous and hard to measure... about creating a professional identity. Not only have they not embraced research [on] practical knowledge, they have pointedly decided it’s not their job to teach it.” Doug Lemov, who is well-known for his descriptions of the practical moves of teaching, similarly faults education schools for a misguided approach to the practice of teaching:

There’s a part of professional training that almost wants to make the profession seem very holy by making it seem inscrutable, when in fact, to me at least, the teaching profession, the work of teaching, is so indisputably valuable, the most important job in our society, that I would rather pre-service training approach it as a craft, the way that a chair

maker would approach the craft, or a watchmaker would approach the craft of making watches and refine tiny moves over and over again. Most of those things are beneath the threshold of narrativity.

At the same time, Lemov's approach has its critics, who think that a focus on specific moves reduces the complexity of teaching. But a clear opinion across our respondents, from both organizational leaders and teachers, was that there are few places where one can gradually learn to become a skilled teacher, where specific practical techniques are integrated with the broader arc, encompassing many of the features of skilled teaching described above.

A related challenge in the training of teachers is the lack of a developmental theory regarding what teachers should learn at different stages. Novice teachers require some knowledge and particular skills, but throughout their careers, teachers would reasonably be expected to develop more complex knowledge and skills. Not only is it unclear what should be learned when, but teachers have few opportunities to develop their knowledge or skill after graduation.

Of course, education schools are no longer the only game in town. Entrants to the field of teacher training have proliferated over the past two decades, with alternative certification providers, teacher residency programs, and even some charter schools, like Match Charter School in Boston and High Tech High in San Diego, that are running their own graduate schools of education. Research suggests that there is more variation *within* each of these types of training institutions than across them—there are high and low quality programs within each group.²⁶ The most effective programs share some common dimensions: they ensure that their candidates have significant content knowledge, focus on extensive clinical practice rather than classroom theory, are selective in choosing applicants rather than simply treating students as a revenue stream, and use data about how their students fare as teachers to assess and revise their practice. It is worth noting that achieving these elements at scale will be challenging. Conventional teacher preparation institutions still train the large majority of teachers, and they form the group that, as a whole, is farthest from the elements of effective practice described above.

Our respondents were similarly critical of the current system of initial induction and ongoing professional development. Jeannie Oakes described how programs are created and selected, suggesting that districts often have little justification for providing particular development programs to teachers:

Most professional development now is just terrible. It's become an industry where people package up their strategies or their techniques or the particular fad or something that may have worked well for them. Then they shrink-wrap it in a package and sell it to school districts who don't know what to do for professional development.

²⁶ Pamela Grossman and Susanna Loeb, eds., *Alternative Routes to Teaching: Mapping the New Landscape of Teacher Education* (Cambridge: Harvard Education Press, 2009).

Part of what is frustrating about the state of current professional development is that it is so inconsistent with much of what we know about adult learning. A study by Linda Darling-Hammond and colleagues summarizes a generation of research which argues that professional development can succeed when it is “sustained over time, focused on important content, and embedded in the work of professional learning communities that support ongoing improvements in teachers’ practice.”²⁷ Relatedly, there is wide consensus in policy circles that billions of dollars in professional development are having little impact on classroom practice, but it has been challenging to come up with a redesign of policy that would ensure quality professional development on the ground.

Finally, in order for teachers to generate, find, and incorporate knowledge of teaching, schools would need to be structured in ways to support such work. Unfortunately this is rarely the case, as insufficient time, expertise, and money hinder efforts by schools to create conditions for teachers to reflect on and develop their practice. Rob Riordan, Dean of the High Tech High Graduate School of Education, describes some of the constraints that can stymie efforts to foster teacher collaboration:

The way I often put it is that we’re asking our teachers to model and foster 21st-century skills in a 19th-century work environment where they have very little opportunity to interact with colleagues and co-plan, discuss the limits together, and discuss students together and so on. In fact, it’s contractual in many districts. There are limits, contractual limits, on the number of hours a teacher can spend in professional development.... Our systems are structured against continuing professional growth.

...in order for teachers to generate, find, and incorporate knowledge of teaching, schools would need to be structured in ways to support such work.

A lack of time is a serious barrier to teachers’ generation and use of knowledge about teaching practice. Erin Osborne, Co-Founder and COO of BetterLesson, described how teachers are “busy as hell,” and often don’t have time for additional activities. Similarly, Joan Richardson noted:

There’s not time built into a work week to allow teachers, principals and others to seek out that information and to use it; it’s not an easy process. It’s not something that—you don’t just Google it and get it in two minutes.

²⁷ Linda Darling-Hammond, Ruth ChungWei, Alethea Andree, Nicole Richardson, & Stelios Orphanos, *Professional learning in the learning profession: A status report on teacher development in the United States and abroad* (The School Redesign Network at Stanford University, 2009).

It takes more time than that. It takes time to find something, to study it, to practice with it. I think we don't appreciate as much as we should how much time is involved in that.

These conditions, which do not support the use of knowledge in schools, create an environment in which such knowledge is rarely sought out. Paul Reville, professor at the Harvard Graduate School of Education, sees the creation of environments in which teachers have time to discuss matters of practice as a pre-condition for the generation of more usable knowledge. Reville argues: "Until we expand the schedule and calendar of teachers, and until we reduce the load and demands in ways that create a space for intellectual development as teams and as individuals, then we won't have an audience."

Problem Three: The Chaotic Ecosystem

The broader policy environment has not provided the needed incentives, roles, or infrastructure that would enable the profession to do the work outlined above.



As a result, the profession lacks key elements such as role differentiation among teachers, shared standards of teacher development and practice, and a competency-based system that would tie expectations for teacher learning to expectations for student learning.

Ambitious teachers do not have clear pathways to advance in their own careers or to help other teachers develop their knowledge and skills. Jeannie Oakes described teachers' few opportunities to grow and take on responsibility:

It's not as though there is an absence of people who are available and could be very capable of becoming a part of a system for helping teachers learn, and building, and using knowledge about teaching. It's just we have this flat profession, where, in year 25, you're essentially doing the same thing as you did in year 1. We don't have a differentiated profession, where people increasingly take on roles of becoming the mentors and guides, and help really develop and protect and diffuse a knowledge system.

There is no shortage of models of how to support differentiation of the teaching profession. Scholars have generated a number of examples of career ladders and lattices in American

teaching. There are also examples abroad, especially in Singapore, which demonstrate that teachers can move up, in their salaries and responsibilities, without entirely moving out of the classroom. But in the United States, such practices remain confined to the realm of individual initiatives—they do not organize the profession as a whole the way that differentiated roles do in other fields. This stasis may partly be due to the fact that teachers view their profession as an egalitarian one; the idea that some teachers know more than others is culturally discouraged within the field, even though it is clearly true.

Another challenge to improving teaching across institutions has been the lack, until very recently, of a common set of learning standards to orient efforts to improve teaching. This has led education schools and researchers to aim to teach wide swathes of content to the broadest possible audience, without any particular goal in mind. As David Cohen said, “There is just a panoply of possible curricula. It’s impossible to learn how to teach without learning how to teach something. You can’t learn to teach nothing.” As a result, teachers have often been left without the skills to teach any particular content. Common standards could enable increased vertical alignment among teacher preparation, induction, and ongoing school-based learning.

The absence of shared competency-based assessments for students and teachers is a parallel problem. Such assessments might serve as a kind of bridge to a coherent system, which would link the competencies we want in students to the competencies we need in teachers. If such assessments were, in turn, connected to the developmental arc of teacher learning, they might make it possible to specify what would be expected at the milestones of licensure and tenure, and what more advanced learning opportunities might look like. One could also imagine that a competency-based system would permit choice and specialization. Everyone would need to demonstrate initial competence on a range of dimensions, but more advanced learning would vary, depending on what teachers wanted to learn and what their students needed. The nascent work on “badging” might provide a dynamic way for different competencies to evolve and for those who were particularly good at something to certify others in their skills.

While our respondents agreed on virtually all of the points raised above, one issue that did provoke disagreement was the potential value of standardized tests. Some of our respondents saw these tests as the linchpin of a professionalized system. By providing a real measuring stick about what works, standardized assessments enable the kind of rigorous scientific inquiry that was so critical to medicine’s success. Scientific inquiry also creates the basis for shared practices across many actors. Doug Lemov described previous conversations about teaching as “founded in ideology because we really had no way to measure anything, so there’s nothing to fall back on except ideology. ‘This is what the classroom should be. This is how you should think about education.’ As opposed to saying, ‘Yeah, maybe you think you should think about it that way, but that really doesn’t work.’” Other respondents were skeptical of the way in which education is currently assessed; they worried that a test-driven culture favors the measurable over the meaningful, alienating creative teachers. Both groups agree that some form of assessment is critical to progress, but disagree about what that assessment should look like and at what levels of the system it should be housed.

There was a similar split over the utility of widespread teacher evaluations, especially those that substantially weight the value-added measures that are currently a focus of the school reform agenda. Proponents saw teacher evaluation not only as a way to protect children from the worst teachers but also as a tool to provide accountability and support for teacher improvement. Critics argued that the key to progress was teacher collaboration and ongoing learning, and that individual value-added measures did little to promote such conditions, and might, in fact, undermine them. Critics also argued that focusing on eliminating a small number of ineffective teachers was a distraction from the larger task of helping the vast majority of teachers to get better. This was one issue on which there was not much middle ground—there was passionate disagreement among our respondents.

It is important to note that there was widespread agreement on 90% of both the problems outlined above and the corresponding solutions to be discussed below, and thus it may make sense for people who care about these issues to begin by focusing on the substantial areas of agreement before delving into the few areas of disagreement.

Reimagining Teaching: A Vision of a Better World

Despite the myriad obstacles that obscure a clear path toward the systematic creation, codification, and dissemination of knowledge for teaching, both the teachers and the organizational leaders that we interviewed identified much potential for positive change in the education system. Drawing on examples of existing best practices, our interviewees offered a vision of what a better world would look like. Overall, they envision: 1) a cohesive knowledge generation system in which universities and teachers collaborate; 2) intermediary organizations that synthesize and disseminate knowledge; 3) a differentiated teaching profession that mirrors medicine, including rigorous pre-service education, gradual induction in which experts mentor novices, and meaningful continuing education and career advancement; 4) a restructured school day that provides teachers with designated time to collaborate, plan, reflect, and generate new knowledge about teaching; and 5) a broad ecosystem that supports the four elements above through policy, incentives, and infrastructure.²⁸

KNOWLEDGE CREATION FOR AND WITH TEACHERS

Many of our interviewees described a vision in which university researchers worked with schools and districts to co-identify relevant questions, and to draw together practical and

²⁸ One promising idea for how to integrate a number of these elements is M. Suzanne Donovan, “A Proposal for Integrating Research and Teacher Professional Preparation,” SERP Institute 2014, accessed at: <http://serpinstitute.org/assets/innovation-induction-09-14-donovan22.pdf>

academic knowledge to support good teaching. As Philippa Cordingley observed: “What we should be doing is collecting teachers’ own research questions, doing a matter analysis of their research questions, and using that to shape the research agenda.” In this vision, problems of practice take precedence, reversing the current paradigm in which university researchers identify questions that address gaps in scholarly research and then select research sites and participants to address their own questions.

Anthony Bryk of the Carnegie Foundation for the Advancement of Teaching, identified individuals who were already engaged in this work: “People like Magdalene Lampert and Deborah Ball are moving down in this direction where you’re really taking problems of practice very seriously, you’re actually engaging in very disciplined inquiry as a general motive of operating, and you’re trying to improve how you get certain things to happen over time.” In our interviews, a number of other leaders also credited these two scholars, along with Pam Grossman and Meghan Franke, with doing meaningful research on practice. Lampert described the motivation for her work: “The research and design project that I run is called ‘Knowing In, For, and From Practice,’ maybe not in that order.... What a teacher needs is not knowledge about teaching, what a teacher needs is knowledge that enables him or her to act in practice.” Lampert, an expert teacher herself who continued her elementary school practice during her tenure as a professor at the University of Michigan, grounds her research in experiential problems of practice and designs her work around a complex understanding of teaching.

Similarly, the organizational leaders in this study described a world in which many more researchers would also be practitioners. David Cohen noted that “in order for...universities to produce usable knowledge for teaching, there would have to be people on the faculty who were expert teachers and teacher educators.” Because expert teachers have a keen understanding of problems of practice, they could lead research projects at local universities in coordination with local schools to generate meaningful knowledge about the teaching profession. Geneva Gay of the University of Washington also identified the value of research led by expert teachers: “There are few occasions where you have practitioners who are also scholars. For me that kind of insight [is] richer in a very different way than when you have a university professor speculating about practice... It’s great in descriptive detail.... These are teachers talking about teaching practice from the vantage point of one who practiced teaching or who is actively engaged in teaching on a day-to-day basis.” Both Cohen and Gay envision a system where expert teacher-scholars like Magdalene Lampert become more common. This vision repositions teachers, and research and knowledge about teaching as a priority in educational research, as opposed to relegating it to the bottom of the social hierarchy in universities.

Those we interviewed also shared ideas about how to make this newly-generated knowledge useful for teachers in practice. Scholars and teachers alike suggested transmitting knowledge through videos and rich narratives. Many of the teachers in this study identified watching other teachers as one of the most influential experiences in their professional growth. One teacher explained, “Any time you watch somebody teach, there are things that you say, ‘Oh, yeah. I could do that,’ and there are things that you say, ‘That’s really good, but that’s—I’m not gonna do that. That’s not me. He has a really different teaching style than I do, but there are a lot of things that I could pick up from him.’” Hence, videos from research projects that depict

particular classroom phenomena, accompanied by succinct analysis, could greatly inform teachers' practice. Similarly, narratives about teaching that are rich in "descriptive detail" – as Geneva Gay noted above – could also give teachers sensory access to instruction, and to its analysis, in an engaging and visual form. David Cohen called this "narrative knowledge" and explained, "It can be written, it can be video, it can be all sorts of things that people can read or watch or listen to and get some sense of what good teaching of this or that looks like, sounds like." As such, research that helped teachers "see" the problems of practice explored and analyzed could be influential for teachers.

CODIFICATION AND DISSEMINATION THROUGH INTERMEDIARIES

Interviewees described a world in which intermediary organizations—including non-profits, for-profits, and professional organizations—would synthesize knowledge (both research and practical) and provide it in a timely and succinct format readily accessible to practitioners. Paul Reville emphasized the need for "filters" or "translators" of research, who could "repackage and rewrite" research to be both "accessible [and] actionable" for practitioners, who might not have the time or support to find and make sense of dense academic research. Participants believed that even the more readily digestible forms of knowledge (like lesson plans and video) still require an institution to filter them and make them accessible to teachers.

Many of our respondents identified non-profit organizations, including professional associations –which operate outside of government mandates, the norms of academic institutions, and the reliance on profits –as uniquely positioned to provide teachers with access to knowledge. Celine Coggins, founder of Teach Plus, felt that non-profits could provide a level of stability through consistent funding, like Title II dollars. Joan Richardson agreed and added, "There's some very high-quality work out there...especially in the content area, professional associations." She named the National Council of Teachers of Math, the National Council of Teachers of English, and the National Science Teachers Association as non-profit organizations that are "exceptional when it comes to collecting, identifying good quality knowledge and disseminating it to their members." These organizations disseminate information through conferences, newsletters, and online publications; as such, they might be well-positioned to reach practicing teachers.

Organizations—non-profit and for-profit alike—with a strong online presence can deliver knowledge to practitioners in creative ways. Scott Hartl of Expeditionary Learning sees opportunity in a variety of "online communities of practice" that are "all about meeting the learner where they are." He further discussed the contributions that these online platforms make to the "knowledge ecosystem": "These days [we] can't think about a single way for teachers to access their stuff. All of our stuff, it's all about how can it be ready to be picked up by lots and lots of different platforms? How can it enter this knowledge ecosystem? Where then it can...end up being accessed by as many teachers as possible when they need it." Teachers named organizations that provided them easy online access to knowledge in the form of lesson plans, videos, and other resources; these included Better Lesson,

Teachers-Pay-Teachers, Kahn Academy, The Teaching Channel, and Curriculum 2.0. By making these highly user-friendly resources available to teachers online, a number of organizations have already found ways to contribute to the “knowledge ecosystem” in meaningful ways.

For-profit companies also have an opportunity to codify and disseminate knowledge by embedding feedback loops into their curricula and instructional materials. James Hiebert of University of Delaware amplifies this point:

“Anne Morris and I wrote an article that appeared in *Ed Researcher* in 2011 that was talking about building instructional products as a way toward building a knowledge base for improving teaching....²⁹ When we describe instructional products, we’re talking about things like...the units that you would use to represent knowledge in teaching. They might be lesson plans. They might be instructional activities. They might be assessments, formative assessments.”

Jim Stigler of UCLA cited Morris & Hiebert’s article and named a few of the organizations he feels are attempting to create such products, including Kaplan and Area9 Learning. Stigler also discussed Area-9’s “SmartBook” platform, which uses embedded questions in textbook pages to provide feedback to the company, such that “paragraph-by-paragraph, they can find out whether students understand what’s written in the textbook.” And once the company color-codes the textbook according to the general accessibility of its pages, “They can take it back to the author and say, ‘Here’s the data. That paragraph is a problem,’ and the author can try rewriting it and test out a new version of it.” Ultimately, he feels “that kind of knowledge is really gonna have an effect, because it’s built into the book the students are actually reading.” While embedding knowledge and feedback loops into instructional materials may sound like a futurist notion, technology has enabled companies to experiment with dynamic systems that take real teachers and students into account in the design of products for classrooms, so that companies can provide more readily usable knowledge back to practitioners.

Although many of the scholars we talked to expressed skepticism about the quality of professional development opportunities, several teachers named particular experiences led by intermediary organizations as highly influential in improving their practice. One teacher discussed the impact of “really incredible” professional development from Diploma Plus, which enabled the teacher to move to “a competency-based grading system.” Similarly, another teacher described a week-long intensive professional development experience with the Landmark School in Beverly, MA that revolutionized her ability to provide high quality writing instruction to students with disabilities: “Writing is difficult for special ed kids, so I attended a week-long professional development [workshop] on teaching writing to students with expressive language disabilities. I did that last summer. That was a week-long course. There’s a real step-by-step way that they do it. They have these frames, like graphic organizers, that

²⁹ Anne K. Morris and James Hiebert, “Creating Shared Instructional Products: An Alternative Approach to Improving Teaching,” *Educational Researcher*, 40 (2011): 5-14.

[are] kind of tried and true. They really know what they're doing." This teacher further explained that she modified the materials she received from the Landmark School to fit her classroom, and added, "It's the first time I've used this particular curriculum.... It went pretty well." Targeted professional development, run by effective intermediary organizations, can disseminate useful knowledge to practitioners in powerful ways.

USING KNOWLEDGE IN A RE-ENVISIONED TEACHING PROFESSION

Our respondents were clear that use of knowledge was as important as its development and dissemination. They described a world in which teachers would be carefully selected and would enter the profession more slowly, with expert supervision from practicing teachers and, initially, much lighter teaching loads. New teachers would have extensive opportunities to practice, reflect, and receive feedback on different aspects of their practice, gradually assuming more responsibility only as they demonstrated the competence to handle it. In this careful and gradual process—the opposite of the “sink-or-swim” model that currently characterizes many teachers’ experiences—practitioners would have the opportunity to slowly integrate and use knowledge.

Many interviewees called for higher standards for entering the profession. Jeannie Oakes described the challenges of teaching and the need to change public perceptions about it:

The notion that teachers have skills and knowledge that are developed over time is really critical.... The public [must] become really aware that you really need to know stuff [to teach]. You have to have this deep understanding of human learning, and the conditions under which that learning occurs, and the importance of context, and the relationship of children’s out-of-school experiences to their in-school experiences. You really have to know that in order to teach well. That’s very different than just saying you have to be a caring person.

One teacher said: “I think we need to raise the bar for teachers in terms of who we let into the field to imply that, yes, . . . a great set of skills [is required] in this work. Yes, there is a knowledge base for this work. Yes, that matters because if we don’t raise the bar, the message is that it doesn’t really matter.” As this teacher noted, if “the bar” isn’t raised for who enters the profession, it sends a message to the public that anyone can be a teacher, which none of our participants believed to be an accurate perception. Kate Walsh, President of the National Council on Teacher Quality, also felt that raising standards to entry meant promoting high-quality training institutions: “We’re trying to change the labor market. Our whole strategy is to persuade aspiring teachers to go to higher-rated programs and to persuade school districts to hire from higher-rated programs. That’s a strategy we think will work.” Moreover, participants believed that teachers should not be licensed to practice until they display what Jeannie Oakes called “a certain level of competence.” Jeffery Duncan-Andrade echoed this idea: “You actually have to show competency before we license you.” And one teacher insisted, “I think there need to be some baseline expectations and understandings that we walk in the

door with.” Overall, participants emphasized the complex and challenging nature of the teaching profession and thus believed that teacher selection needed to be thoughtful and systematic.

A number of our respondents envisioned a new system for teacher preparation. Some likened teaching to medicine and supported a training system for teachers akin to medical residency. One teacher proposed a model for this:

We need to start to think in our teacher prep programs about a true residency model where you are teaching and working maybe in different rotations: you do a six-week rotation in a charter school; you do a six-week rotation in a traditional school; you do a six-week rotation in a pilot or a magnet; you do a six-week rotation working with kids. . . [who have] English as a second language; you do a rotation in special education.

Many other teachers expressed support for a re-envisioned teacher residency model, characterizing a residency more generally as a gradual process of supported practice with increasing responsibility under the guidance of expert mentors. A number of organizational leaders and scholars echoed support for a thoughtful model of teacher residency, but specified particular advancements that would have to take place for this vision to become a reality. For example, in medicine, there is a clear curriculum that medical students study, together with teaching hospitals where beginning physicians are supported by excellent practitioners in practicing their developing skills. David Cohen argued that in order to develop an effective teacher residency model, education would have to create similar systems:

Given a particular curriculum—assuming that it was at least a decent one—then you could build useful teacher education around that. Absent that, I don’t think it can be done.... There would have to be schools—K-12 schools—that were, if not a wholly owned subsidiary of the university, they would have to in some sense be creatures of the university. The university and the schools would have to control the curriculum. The schools would have to be organized such that the teachers there wouldn’t be there unless they were excellent teachers and unless they were committed to doing teacher education in their classrooms and around the schools.

With a universal curriculum, “lab schools” where novices could practice teaching, and faculty members who were also good teachers, David Cohen believes “useful” teacher residencies could be established.

While this seems like a tall order, teacher residencies across the country have begun to experiment with variations on this model. Jesse Solomon, Director of the Boston Teacher Residency, acknowledged the reforms that have to take place to support this kind of program: “I think that reforms have to be both structural and human capital, so you have to affect both

the systems and structures that people work in as well as who the people are and how they're prepared and those kinds of things. By trying to build our own schools and prepare people in those schools, it's sort of in the model of the teaching hospital." The Boston Teacher Residency and similar organizations have begun to experiment with creating their own systematic curriculum for teachers, hiring expert teacher educators, and building "teaching hospital" type schools to support novice development.

This re-envisioned teacher residency model would continue beyond licensure, through systematic and supported teacher induction. As teachers entered induction, they would have a reduced teaching load and would benefit from personal coaching or mentoring from an expert teacher, earning professional status once they demonstrated proficiency. Teach Plus's Celine Coggins explained the importance of this kind of induction:

I think that the way that we talk about teacher training is wrong, is disproportionately focused on pre-service, when really what we should be focused on is...those first couple of years where you really can figure out who's going to be successful with students. Then setting a very high bar for the profession...so that if a teacher earned professional status, that should be something that is actually a really big deal rather than just getting into the profession, and...—in my ideal world, you'd make significantly more as a teacher once you've passed those first two years and can demonstrate you're being effective with kids.

Although most of our participants considered pre-service a critical step toward ensuring teacher quality, just as medical school is viewed for doctors, many also felt progressive induction was a critical next step. Most of the teachers in our study who had benefitted from gradual induction and/or systematic coaching reported that this had a significant impact on their practice. One teacher, who started teaching at a school with a gradual induction model, explained:

My teaching has grown because of the instructional model. My first year was as a co-teacher; I was responsible for teaching 1.5 or 2 [classes] at most compared with 3 classes for most. My only responsibility was to sit and watch; taking notes, study and practice in my mind re[garding] how to get that same lesson across. This was a huge benefit – seeing it all before having to teach it. [My mentor] watched me as well and we worked super closely together, [with] constant feedback, planning meetings, etc.

This gradual supported experience enabled this teacher to continue to acquire and practice knowledge for teaching that ultimately benefitted his/her practice. Another teacher explained, "I think a lot of growth happened my first and second year, when I had an induction approach from [Boston Teacher Residency]. The way it sort of shaped me as a teacher was that the content is the center of teaching.... I think I got a lot of support in analyzing lessons, analyzing my interactions with students, analyzing the framing of the tasks." This teacher went on to describe a meaningful experience in being coached to attend closely to student talk through

reviewing transcripts of student discussion and using these to understand how students were “making sense of the content” and then “extract[ing] the points that I wanted to highlight for the group.” These teachers’ experiences indicate that a systematic and supported induction into teaching could indeed support more thoughtful and effective teaching practice.

To adequately support this kind of systematic induction, the teaching profession would have to become more differentiated, with expert teachers paid to mentor new teachers and develop the arc of learning for their school communities. Ron Berger of Expeditionary Learning Schools explained what this could look like: “It would take...re-imagining the job of a teacher, from always directly serving the students that are being sent to them to a combination of direct teaching and sharing best practices with colleagues.” Berger continued by suggesting the value of an apprenticeship approach to learning a profession:


I would say, having spent many years as a carpenter, it was a much more sensible understanding of how to become a master carpenter. In carpentry, you are a laborer, and then you become an apprentice. As an apprentice, you’re doing carpentry, but you’re being taught by master carpenters and journeymen carpenters all the time. If you have apprentices on the site, the master carpenters see it. Their job is not just building the house, but teaching the apprentice carpenters the skills they need, and the understandings. Then, you become a journeyman carpenter. You become a master carpenter after seven years, maybe after ten years.

In this kind of apprenticeship, the relationship between mentor and mentee would have a joint impact: novice teachers would certainly benefit from the expertise of their mentors, but the mentor would also continue to learn from the experiences and the fresh ideas and enthusiasm of the apprentice. One teacher described learning through the process of being trained to mentor other teachers, while another discussed “taking everything from the resident and using it right in the classroom.” Moreover, this kind of differentiated career ladder for teachers could also support teacher growth and retention throughout their careers. Ultimately, a re-envisioned teaching profession that more systematically selected, trained, and supported novice teachers could benefit novice teachers, their mentors, and the students they all serve.

A NEW KIND OF SCHOOL DAY

Participants further envisioned a world where schools themselves would be significantly restructured so that teachers would have considerably more time to plan and watch other teachers, and would spend less time face-to-face with students. One of the teachers we interviewed asserted, “Schools have to make a priority to allow teachers the time in their schedule to meet together and discuss ideas, to allow teachers the money and the budget to get a sub for your class one day so you can go see someone awesome teach.” Many of the teachers in our study emphasized how influential watching other teachers and working with colleagues had been for their practice. Thus, providing time during the school day to support these tasks could improve the use of knowledge in teaching. A number of the scholars in this

“Schools have to make a priority to allow teachers the time in their schedule to meet together and discuss ideas, to allow teachers the money and the budget to get a sub for your class one day so you can go see someone awesome teach.”



study supported a similar notion of restructured teacher time. James Hiebert explained how schools could change to support this: “In order to do that, you would need an administration that allows teachers time to do this during the day, and also doesn’t lay on them a hundred other expectations [like] professional development activities that they have to engage in, but basically frees up their time to just focus directly on the teaching.” This notion may sound visionary, but a few of the teachers in our study teach at schools where such a school day has become a reality. One teacher explained, “One of the things that my school does well to professionalize who we are is that we do have a lot of collaborative time, and that’s really important... The administration in my building has always prioritized that.” While most public schools have a mandated number of instructional hours a year and thus currently face structural limitations on how much time they can open up for common planning during the school day, charter and independent schools have begun to experiment with the use of school time in consequential ways.

One use of this common planning time would be for teachers to adapt for their students strategies being generated by the new knowledge-producing sector, thus bringing together general external knowledge with the context-specific knowledge teachers have about their own school and students. Joan Richardson explained, “If we really want teachers to learn more, if we want teachers to use what research provides them—whether it’s research from the field or it’s university research—we have to think seriously about when they’re going to do that work. The answer can’t be that they’re going to do it on the weekends and after school is over at the end of the day. We have to think about how we structure their time because that’s the responsibility of all employers.”

Currently, teachers do not have time or support to approach research about teaching; by creating time during the school day to read research and generate common strategies to integrate findings into practice, teachers could make better use of new knowledge coming out of research. This kind of common planning time could also take the form of trying out new strategies and focusing on student response, and then using this interaction to assess the impact of particular practices. One teacher explained, “I think most [teachers] learn through being provided structures and time within the school day, using real-life teacher practice and student work to start to learn how to do some of these things. How to reflect on your own practice, and be a constant learner, or how to look at and analyze student work. I think it comes through doing, but a facilitated doing.” Others talked about how “grade-level team” and

department meetings during the school day could facilitate a more specific focus on certain content or students in this process. In sum providing teachers time within the school day to consider research, address student work, reflect on individual practice, and process all of this with colleagues could go a long way toward advancing the integration of knowledge into classroom practice.

Conclusion: Building a Better World

There is wide agreement among a diverse set of actors about the nature of the problem and the shape of the solution. There are many promising efforts underway; the challenge will be to build on those efforts and develop the needed foundation that would put a great teacher in every classroom. In the years to come, we are looking forward to seeing the many people who care about these problems come together to build the kind of system that our teachers need and our students deserve.

Transforming Teaching unifies education organizations and other key actors around a shared effort to build a common knowledge base for teaching, establish a coherent system for training and developing educators, and cultivate a supporting environment for transformative change in the profession.

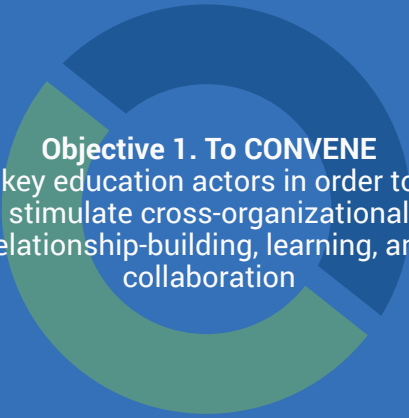
RESEARCH CONFIRMS what parents have long known: The quality of a student's teacher is, more than any other school-based factor, the most important force in shaping his or her educational outcomes. Unfortunately, there is tremendous variability in the quality of teaching from classroom to classroom in the United States. Many quantitative and qualitative classroom reports consistently show a pattern of low level instruction, with a significant minority of teachers mounting a much more ambitious and engaging instructional program.

WHY IS THIS? We argue that the problem lies not in individual teachers but in the absence of a system that reliably builds and grows teacher expertise. It is remarkable that given the importance of teachers and teaching to our nation's collective life, that there is no reliable and integrated set of mechanisms—a system—that ensures the quality teaching that should be a birthright of every child.

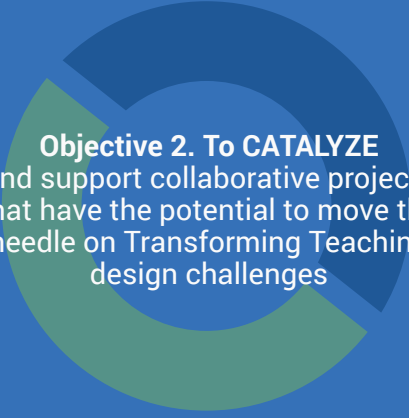
THE ULTIMATE GOAL of our initiative is *to transform teaching into a profession in which all educators have the knowledge, support, and influence needed to provide an excellent education for all U.S. students.*

OUR STRATEGY

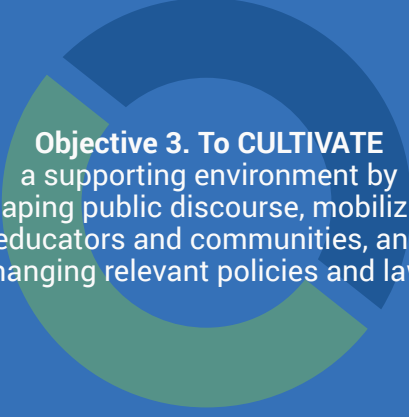
We are focused on creating the conditions such that every teacher in the U.S. has the knowledge, skills, support, and influence needed to provide a consistently excellent education for all students. Specifically, we embrace the following three strategies to achieve transformative change in the sector:



Objective 1. To CONVENE key education actors in order to stimulate cross-organizational relationship-building, learning, and collaboration



Objective 2. To CATALYZE and support collaborative projects that have the potential to move the needle on Transforming Teaching design challenges



Objective 3. To CULTIVATE a supporting environment by shaping public discourse, mobilizing educators and communities, and changing relevant policies and laws