Transforming Schools Requires More Than "More Is Better" Reform

Frederick M. Hess

Twenty-first century school reform has been consumed with the project of "fixing" schools and school systems. The impassioned pursuit of "best practices" and "scalable models" has yielded a frenetic search for the "right" standards, teacher evaluation systems, data systems, turnaround strategies, and school models. Whatever their merits, these efforts have tended to share a baseline presumption: that the proper application of these things can make schools, as organized and conceived, do profoundly better. On that score, we should be profoundly skeptical.

Thomas Edison's genius wasn't his call to build a really big candle or to scale up candle production. Rather, the light bulb, and all it made possible, was a product of thinking about the problem differently—of assembling new materials in a wholly new way. Similarly, the digital revolution hasn't been fueled by attempts to do "what worked" in 1965 on a grander scale. If it were, your $600 iPhone would cost $600 million and require machinery the size of a small office building.

Historically, significant progress has resulted when pioneers find ways to leverage new tools in more powerful ways, reconceive what people do to reflect the new possibilities, and then reimagine professional routines to suit. For all the enthusiastic paeans that have been showered upon brand-name charter schools, Teach for America, and one-to-one ed tech initiatives, this is decidedly not how we have gone about things in education.

In fact, the mantra in education has tended to be "more is better." More and "better" people. More time in school. More technology. Even as after-inflation per pupil spending quadrupled over the past half century, it's remained an article of faith that schools are underfunded. Even as growth in teaching and professional staff has continuously outpaced growth in student enrollment, it's been assumed that schools are understaffed. Even as one new reform after another disappoints at "scale," advocates have simply pivoted to one new ambitious fix after another.

What "more is better" misses is how peculiar and problematic this state of affairs is, especially given that education is perhaps the most quintessentially human of enterprises. Successful schools and classrooms are inevitably the product of the relationships between adults and students. Tools and innovations which nurture those relationships, provide more time to build trust, and increase opportunities for learners to get personal feedback all make obvious sense. Meanwhile, tools and innovations are generally unproductive when they make schools more rigid and bureaucratic because, at that point, they're making it more difficult to forge productive learning relationships.

Moreover, when transformative change is pursued by layering new programs, policies, and tools, atop familiar structures and routines, the results tend not only to disappoint but also to deepen the investment in outmoded arrangements.

Consider the case of teacher evaluation.

These new systems were occasioned because reformers and policymakers were horrified by the fact that more than 99 percent of teachers were routinely deemed effective, even in struggling systems. The push for new teacher evaluation systems was central to Obama administration efforts, along with the Race to the Top and then ESEA waivers. Matt Kraft and Allison Gilmour examined teacher evaluations in 19 states that had adopted new evaluation systems since 2009.[1] What did they find? After all the time, money, and passion invested in these reforms, the share of teachers identified as effective dropped from 99 percent—to 97 percent. Not only did the teacher evaluation stuff not work, but it consumed extraordinary time and energy—involving whole rafts of observations, paperwork, reporting, and uncertainty. The tab was enormous, including close to a billion dollars in private and public funding and

staff just for the handful of districts involved in the Gates Foundation's Measures of Effective Teaching study.[2] Nationally, it's fair to surmise that the total cost reached into the tens of billions, at a minimum.

Besides being unsuccessful, the teacher evaluation reforms drew schools ever more deeply into the assumptions of the traditional schoolhouse. Consider the dozens of teacher evaluation systems that states adopted which required that a fixed percentage of a teacher's evaluation be based on value-added scores on reading and math tests. The assumptions behind this evaluation system only work so long as schools are wedded to a traditional one-teacher-one-classroom arrangement. Think about it: If schools are piping in virtual instruction, or making heavy use of in-house tutors, the system breaks down. If teachers share ownership of middle school math instruction, the system breaks down. In short, these systems offered a vision of "21st century" teacher evaluation which promised to work only so long as schools clung to the one-teacher-and-twenty-five-student classroom of the 19th century.

Or consider our experience with technology in schools. Efforts to simply drop new tech into yesterday's schoolhouse disappoints again and again, without ever yielding sustained efforts to reengineer what teachers actually do. The result has been more teachers and computers, and perpetual frustration that we can't find the funds for bolder change.

For a century, it's been promised that each new technological advance is going to transform schooling. In 1922, Thomas Edison (yeah, the same light bulb guy from above) proclaimed, "The motion picture is destined to revolutionize our educational system . . . In a few years it will supplant largely, if not entirely, the use of textbooks."[3] Whoops. Soon radio was the hot new thing. In 1931, U.S. Commissioner of Education William Cooper established a radio section in the U.S. Office of Education and, by 1932, nine states were broadcasting regular educational programs. Benjamin Darrow, author of *Radio: The Assistant Teacher*, touted radio as the "vibrant and challenging textbook of the air."[4] Similar stories can be told about TV, the desktop computer, laptops, tablets, and much else.

The problem is not with the technology, it's with how it gets used. Technology gets grafted onto classrooms even as the rules and routines governing classroom design, scheduling, staffing, and pedagogy remain unchanged. Eventually, though, we realize that all the new stuff hasn't made much difference, things simmer down for a bit, and then the whole cycle kicks off again.

Let's be clear. The point is *not* that teacher evaluation or education technology "don't work." It's that they'll only work the way we hope when the redesign that accompanies them is more than cosmetic.

Thinking Differently About the Talent Challenge

So, what might be a promising path if the goal is transformative change? An alternative approach begins by rethinking what it is teachers do, and then rethinking who might do this work and how they might go about it. In that light, it can be helpful to glance back at the 19th century Common School movement that provided the template for American schooling. That effort, spearheaded by Horace Mann and his energetic allies, pursued an ambition of universality, with all students undergoing the same cultural, social, and intellectual training—in classrooms staffed by plentiful (and poorly paid) women educators.

In the early 20th century, Progressive reformers worked to expand and systematize the legacy of the Common School reformers. This, of course, required schools to recruit and retain more and more teachers. The teaching force increased rapidly over time, and then tripled between the 1950s and early 2000s—from 1.1 to 3.3 million.[5] Meanwhile, in the 1960s, the K–12 monopoly on educated women workers was coming to an end. Schools needed a steady stream of bodies, but the barriers that kept educated women out of other professional roles were starting to erode. The result? Schools that need to find 300,000 bodies a year, just to replace attrition. This figure is *larger than the number of total graduates* produced by America's selective college and universities each year, all of which makes it

incredibly difficult for school systems to be selective, strategic, or focused on quality training as they might wish.[6]

Meanwhile, policymakers and educators were slow to respond; it wasn't until the late 1980s that anyone even started to tinker with alternative licensure and midcareer recruitment. Inertia has frustrated those trying to staff a 21st-century teaching force while operating in accord with the assumptions of an earlier era.

Adjusting to new circumstances requires school systems to start thinking differently about how to find and make the best use of talent. Other professions, for instance, have found ways to ensure that they are squeezing maximum value out of their most talented and most highly trained professionals.

The medical field is one such example: A little over a century ago, there was no such thing as a medical specialty, and it was hard to talk seriously about medical expertise. Today, the American Medical Association recognizes about 200 specialties, which are generally associated with a high degree of expertise.

This kind of expertise, with its requisite years of exquisite training, has been possible only because a small sliver (about 10 percent) of the 7 million-plus medical professionals in the U.S. are physicians.[7] The vast majority of those in medicine are not doctors, but complement their efforts, with the bulk of routine care provided by physician's assistants, nurse practitioners, and the like. These professionals are appropriately trained, but much less intensively and expensively than are the physicians they work alongside.

High-functioning hospitals and medical practices work to ensure that staff time is spent sensibly—so that support staff aren't asked to tackle tasks which exceed their expertise, and that exquisitely-trained, expensive experts aren't wasting time on rote tasks readily done by colleagues. Skilled specialists don't spend time taking blood pressure readings, filling out patient charts, or negotiating with insurance companies; these responsibilities are left to nurses or support staff.

Think how different this is from schools, where teachers make up 60 percent of the K-12 workforce, there is little effort to think about roles that might make the best use of staff training and talent, talented teachers spend lots of time on clerical and menial tasks, and the vast majority of teachers—regardless of talent or training—all wind up doing pretty much the same set of tasks, day in and day out.

It's ludicrous, of course, to suggest that medicine—or any other profession—has this "right." That is *decidedly* not the point. The goal is not to mimic medicine, which has plenty of challenges of its own, but to ask how education might more thoughtfully order responsibilities and leverage talent. Here are four ways we might approach that kind of rethinking:

Unpack what teachers actually do. Teachers perform many tasks in the course of a day. They lecture. They facilitate discussions. They grade quizzes. They fill out forms. They counsel distraught kids. They monitor the cafeteria. And so on. No one believes all these activities are equally valuable. Yet, when I work with teachers, they almost unanimously report that they have never been part of a disciplined effort to unpack what they do each day and use that to increase the energy devoted to the things that matter most. Elsewhere in schools, there are robust examples of what it looks like to do this well. At a well-run football practice, time is broken down into tight increments. During a given practice, students may do film study as a team with an assistant coach, lift weights with a conditioning coach, and practice techniques with a position coach. There are a lot of similarities in the work routines of an accomplished high school orchestra or debate team. So this is possible to do in schools; it's just not the way teachers' work or classrooms have traditionally been organized.

Explore instructional specialization. The typical teacher spends less than two-thirds of their total classroom time on academic instruction, with the remainder consumed by administrative tasks, fundraising, assemblies, socialization, and so forth.[8] The problem is that schools have done little to address the immense opportunity costs of not leveraging the talent already in schools. Having an exquisitely trained early literacy teacher watching students eat lunch, filling out forms, or teaching addition—simply because she's a "second grade teacher" is a bizarre way to leverage scarce talent. The redesign challenge, then, is to "squeeze more juice from the orange" by utilizing support staff and specialization to ensure that specially trained or especially talented teachers are spending more time on the things they do best. Between 1992 and 2015, school support staff grew by 47 percent—twice the rate of the teacher workforce.[9] Yet, it's rare for these employees to be systematically utilized in a way that reduces burdens on teachers or amplifies their impact on learners.

Let teachers grow in their roles. In school districts across the land, the professional track for teachers tends to look largely the same. Nearly all systems use some version of the step-and-lane pay scale, in which teachers enter the profession at roughly the same salary and with roughly the same job description.[10] Things don't look much different in most charter schools. This offers little opportunity for teachers to grow professionally and does little to leverage the skills of the most accomplished or most carefully trained educators. Other approaches are possible. In the Opportunity Culture model, for instance, an experienced teacher mentors a team of six novice teachers, without having to leave the classroom to become an administrator or (non-teaching) "instructional coach."[11] Lead teachers are accountable for the results of the entire team's students and receive supplemental pay for their extra time and effort. Such initiatives encourage exceptional teachers to remain in the profession and provide an opportunity for upward mobility.

Expand the pool of potential teachers. Exclusively recruiting new college graduates for teaching positions made sense 50 years ago, when the average bachelor's degree recipient held just five jobs throughout an entire career. Today, new grads may well hold that many jobs by the age of 30. Early career transience, extended work careers, and the prevalence of midcareer transitions make it increasingly bizarre to see education systems training future teachers at age 22 and expecting them to keep teaching into the 2050s. At the same time, balky licensure systems, seniority-based pay, and factory-style pensions create big practical burdens and financial penalties for career-changers. When one considers the skills and knowledge that a 40-something engineer, journalist, accountant, or computer programmer might bring to the classroom, the opportunities are clear.

The goal is to rethink the teaching profession in ways that alleviate the need to recruit and train more than three million superheroes. Expanding the pool of potential teachers, taking advantage of distinctive skills, giving more responsibility to accomplished teachers, and leveraging technology may hold out more practical promise. And it's that last one—the role of technology—that can radically multiply the possibilities.

When and Why Ed Tech Helps

If talent has a leading role in transforming schools, then technology has a crucial complementary role. Now, as we established a little earlier, education technology is endlessly hyped and just as endlessly disappointing. At the same time, there are profound examples of the role that technology can play in the classroom—especially by off-loading instructional tasks from teachers so that students have more access to learning and that teachers can spend more time doing the things they're uniquely suited to do.

Consider the most impactful bit of education technology I can think of. When first introduced, it offered two great strengths. First, it gave students access to experts from around the world; they could learn things even if their teachers didn't know them. Second, no longer reliant on teachers to tell them

everything, students could learn at home. This "flipped" the classroom, allowing teachers to spend less time lecturing and more time explaining, mentoring, and facilitating.

What technology do I have in mind? Why, the book, of course.

The book first became widely available with the invention of the printing press in the mid-1400s. Previously, teachers and students had relied on painstakingly hand-inscribed parchment. The printing press slashed the cost and complexity of making books.

The book eventually made it possible to rethink the teacher's role. With books, students could master content and concepts outside of school, learning even when a teacher wasn't there to instruct them. Books enable students to move at their own pace and to re-read passages as needed, permitting the kind of reinforcement that learners need. They allow students to learn in the evening, when ill, or even when assigned to a teacher who is an unclear, uninteresting, or unreliable explainer of content. In each case, of course, books may be inferior to a lesson delivered by a gifted instructor. But for most students, books are a big improvement over the alternative.

All of this made it possible for teachers to approach their role very differently. Rather than being required to spend class time spewing content, teachers could ask students to read at home and use class time to engage in the kinds of dynamic, humane student-teacher interactions that engage young minds and help students make sense of the content. Of course, the fact that teachers *could* do these things was no assurance that they *would*. Even today, five centuries on, it's not uncommon to see teachers providing tedious, low-quality lectures in which they spend class repeating to students the very things they asked them to read the night before. So, there are no guarantees that tools which make it possible to reengineer schooling will necessarily be used accordingly—that is always a question of what educators ultimately choose to do with the new tools at their disposal.

In all of this, the book provides an invaluable template for how to best think about education technology. The book made it possible to reengineer teaching and learning, so as to give students more access to knowledge while allowing teachers and students to spend more time engaging in more impactful learning.

At the same time, the book has real limitations. This creates enormous opportunities for new tools to complement or improve what books do, further enabling more teachers to spend more time engaging in the kinds of instruction that matter most. Just what are some of the shortcomings of the book? Here are a few:

- Students learn best when eye and ear work in tandem—but books are a silent medium.
- Books are fixed, providing the same experience to every reader, every time.
- The content and language will inevitably be too difficult for some readers and too easy for others.
- Books can't offer a live demonstration or a new explanation to a confused reader.

Newer technologies can address many of these limitations. Online materials can be rapidly updated, are customizable to a student's interests and reading level, and feature embedded exercises that let students apply new concepts and get immediate feedback. Virtual instruction makes it possible for students to access real, live teachers unavailable at their school; this can be a haven for some students, especially those reluctant to ask questions in class.

Okay, let's turn from the book to a more cutting-edge technology—the old-school, humble chalkboard. Yep, let's keep it on the low-tech side. What's important here is that the chalkboard enabled teachers to

do things they couldn't do without it: to keep notes in front of the class; to have students come up and do work that the whole class can inspect; to share large, ad hoc diagrams and drawings; and to track student ideas or the flow of a class discussion. It can provide a visual complement to the teacher's audio voiceover—one that's provided in real time, that's responsive to student questions and concerns, and that keeps a reviewable track of what's come before. And all this is even before one gets to the remarkable innovation of *sliding* blackboards – with surprising information, showing completed solutions, giving alternative methods to discuss, and so much more.

Boiling all this arcana down, the takeaway is that any technology, no matter how old-fashioned or cutting-edge it seems, tends to help by amplifying or extending the reach of human talent or by completing rote tasks more consistently and efficiently. Put differently, there are five main ways that technology can help—it's especially well-suited to making learning solutions more *affordable*, *reliable*, *available*, and *customizable*.

- ***Affordable***. Technology can eliminate all kinds of costs. Millions of people can read a book that exists solely as pixels, saving all the costs of printing and distribution. Schools that once had to spend thousands of dollars to buy classroom sets of one novel can give faculties access to whole libraries of choices.
- ***Reliable*.** The best entertainment is now reliably available through technology. With recorded performances, there are no logistical headaches or performer illness issues. A digitally mastered version of a concerto or popular song is now reliably available at the touch of a button.
- ***Available*.** Online customer service is available twenty-four hours a day. You can order groceries online at 10 p.m. and find them outside your door the next morning. For a remarkably manageable price, it's possible for students to obtain one-on-one online tutoring in math or Arabic, 24-7, any day of the year.
- ***Customizable***. Think about Amazon or Pandora and the way they use technology to customize the information we receive. If a student is having trouble comprehending their sixth-grade textbook or mastering a concept, technology makes it relatively simple for teachers to provide additional materials and activities that match the student's needs.

Technology as a Tool, Not an Elixir

Tutoring provides a nice illustration of how all this can play out. After all, one-on-one tutoring is about the best way we know to provide intensive instruction, real-time customized assessment, and personalized practice. The problem: While these things are immensely powerful and useful, they're typically too expensive to provide at scale.

That's where technology can help. For instance, research comparing "intelligent" (read: computer-based) tutoring systems to traditional tutoring suggests that the best computer-based systems can nearly match the performance of human tutors when it comes to helping students with basic skills.[12] This isn't all that surprising. These systems simply put the basic tenets of learning science to work. They provide targeted feedback, repeated practice, pacing matched to the student, a variety of illustrations and explanations as needed, and audio and visual channels of information. They're most likely not going to be as good as the very best human tutors—but they can approximate what typical human tutors do, at scale.

If these tutoring systems aren't any better than human tutors, why bother with them? Because these tutoring systems are always available, don't get tired or sick, never have a bad day, and accurately tell you how things are going. Technology can deliver scalable, cheap-to-deliver, *good* solutions that do some things nearly as well as the average human tutor (if not the very best ones). And these systems benefit from the steady collection of data regarding what students are doing and how well it's working. In short, they can make quality tutoring more affordable, reliable, available, and customizable.

When schools start to rethink what it is a teacher does by putting to work the new possibilities introduced by technology, it's possible to start altering the rhythms of the schoolhouse in profoundly promising ways.

The New Classrooms instructional model is an intriguing illustration of how this can play out. New Classrooms supports math instruction for grades five through eight by working with schools to abandon the traditional grade-level, self-enclosed classroom in favor of an approach in which a grade-level team provides multiple modalities of instruction—such as live teacher-led lessons, software-based lessons, collaborative activities, virtual tutors, and individual practice. Using an iTunes-like "playlist," the school identifies which learning objective a student ought to master next and then assigns students to a learning approach for each unit based on each student's needs and learning styles.

The result allows teachers to customize what a student learns each day based on what's already been mastered, what works for that student, and however much time is needed to master a concept. The approach also allows teachers to do more of what they do best, while ensuring that less experienced teachers will be working with a team leader who can provide support and guidance on a daily basis. Integrating multiple modalities makes it possible for teachers to incorporate online instruction or intensive computer-assisted exercises, as appropriate, while permitting additional time for small-group instruction and personal coaching.

A Few Takeaways

What should we make of all this? There are at least four points worth keeping in mind. First, layering reforms atop the existing instructional structure is not the path to transformation. Second, rather than try to train up more than three million "effective" teachers, we should start thinking differently about the teaching job, the tasks that teachers do, and how schools might be organized so that skilled educators spend more time doing the things that will matter most for students. Third, technology is most useful when viewed as a tool that can help complement or facilitate specific instructional tasks. Finally, trendy jargon doesn't help with any of this. Talk of "teacher professionalism" has tended to distract from the need to rethink what it is teachers actually do. Enthusiasm for "personalization" has too often translated into a conviction that online learning will "flip" classrooms and revolutionize learning. Making transformation a reality will require less rhetoric and more reengineering.

So, What Now?

In practice, this is all so tough to do because of the tapestry of rules and regulations, cultures and contracts, and policies and practices that have grown up in and around American schooling. These can feel immutable, or at least so deeply rooted that it's foolhardy to imagine schools actually managing to radically reimagine job descriptions, what teachers do, or how instruction is organized. After all, when one considers the constraints imposed by salary schedules, Title I requirements, IDEA mandates, state assessments, benefit obligations, parental expectations, hiring dictates, teacher-of-record rules, and all the rest, talk of transformation starts to seem naïve, at best.

Given all that, what might help move the needle? Here are ten places to start:

Spend less time celebrating the "what" and more learning the "how." Many promising educational developments take a useful insight about talent or tools and deliberately, effectively put it to work. Unfortunately, when these models get discussed or emulated, enthusiasm for the "model" tends to obscure exactly what was required to make the change work. Thus, attempted replications frequently

disappoint. We should focus much more intently on examining when, why, and how new tools or talent configurations actually work.

Embrace learning science. More knowledge about how children learn turns education technology from a distracting novelty into something that complements and amplifies teaching and learning. The same dynamics can increasingly facilitate a growing, reliable body of instructional expertise. This suggests the value of spending much more time exploring the particulars of learning science (How to best combine audio and visual learning? How many iterations of a given exercise are useful? How best to diagnose why a student might be struggling with a concept?), even if that requires a shift from other priorities. This would apply to federal research funding, foundation investments, and the research priorities of school systems, universities, and scholars.

Put a premium on cage-busting. Educators inhabit a latticework of accumulated rules and routines. The result is that the understanding of what's even possible gets constrained by notions of what federal funding streams, contracts, or state law "allow." And yet, there are teachers and leaders who have found ways to escape this self-imposed "cage." While the programmatic innovations of these cage-busters can come in for a good deal of attention, the ins and outs of just how they've escaped the cage rarely come in for attention, explication, or celebration. Journalists, scholars, advocates, and educational organizations could do much more on that score. And those training and supporting educational leadership, who typically favor a "best practices" approach, could do vastly more to nurture and promote cage-busting habits of mind.

Know what is actually being done in classrooms, by whom, and how often. Even acclaimed principals frequently can't say how much time teachers spend dealing with balky technology, devising a lesson plan, or mentoring peers—much less on large-group vs. small-group instruction. That makes it tough to know whether time is being used sensibly. While it may be a fool's errand to identify some "optimal" allocation of time, this kind of information can be a powerful lever when it comes to identifying promising applications of technology, flagging opportunities to reconsider teacher roles, surfacing alternative divisions of labor, and facilitating healthy discussions among school staff.

Work with educators to identify and address problematic rules and regulations. When opportunities to rethink the use of time or the staffing of schools emerge, they are often met by explanations as to why the recommendation isn't practical, permissible, or legal. Some of these objections have merit. But many are rooted in misinformation, timidity, or confusion about what policy says and requires. State and federal officials should actively convene school and system leaders working to rethink the use of time, tools, and talent—not to celebrate them or learn about their "solutions," but to understand the obstacles they've encountered, how they've overcome those, and what changes or clarifications would help with all of that. What's needed is not necessarily new policy but rather explanations as to what's allowed under law and guidance on how funds may be permissibly used.

Encourage, invest in, and research models which explore new staffing configurations. Intriguing new models, like Opportunity Culture and New Classrooms, are being pioneered and evaluated. But when we consider the number of classrooms and schools in the nation, the concerted efforts to reimagine what teachers do and how they work together make up a vanishingly small share of "innovative" activity. Meanwhile, billions are invested in new programs, interventions, professional training, and whole-school models that don't fundamentally change how we think about who teachers are or what they do. There are vast opportunities to do better.

Support and promote those charter schools which emphasize unbundling. While charter schools enjoy a degree of autonomy that makes it easier for them to lead on rethinking tools and talent, most have adopted familiar job descriptions, divisions of labor, and work routines. That has left untapped much of

charter schooling's potential. Charter funders would do well to ramp up support for schools that are focused on reengineering the schoolhouse, whereas support to date has mostly favored charters which are getting good results by doing a good job running the familiar model (often by leaning on a limited supply of Teach for America-supplied teachers to work exhausting schedules). Funders would also do well to support entities, like New Orleans-based 4.0 Schools, that are equipped to help educators and entrepreneurs pursue this kind of reengineering in a purposeful, coherent way.

Gauge ed tech based on whether it makes it easier to teach well. There's lots of education technology out there. It's easy for all of it to seem beneficial to observers and administrators (who are safely removed from teachers' day-to-day). But a lot of education tech winds up complicating the lives of educators by creating new headaches, new sources of distraction, and new data-entering requirements. Given the human interactions that are at the heart of learning and growth, the best measure of most K-12 tech should be whether it helps educators do their job better—helping them spend more time coaching, mentoring, and supporting learners, and less time on repetitive tasks or presenting content in suboptimal ways.

Insist on new opportunities for teachers as part of any deals to increase teacher pay. Teacher strikes and political sympathy that have yielded widespread efforts to boost teacher pay provide an opportunity to kick-start the process of reimagining the profession. New job descriptions, responsibilities, and professional opportunities will require alterations to traditional pay scales—with big increases for some educators and the creation of some new, lower-paying, support roles that can be filled by those with an associate's degree or a year of specialized training. Such transitions entail costs, of course, and can be disruptive. That makes it impractical for schools to make such shifts in the normal course of events, but a big infusion of new funds—made conditional on such change—offers the chance to both minimize the pain and maximize the allure of redesign.

Cultivate localized ecosystems to tackle the chicken-and-egg dilemma of new roles and training. Schools can't start to think about redefining roles until people are trained for those roles—but it makes no sense for colleges or other programs to train people for roles until they exist and are clearly defined. The result: a paralyzing stand-off. The best way to escape this chicken-and-egg dilemma probably entails a small-scale partnership between a few school systems and teacher training programs. This collaboration would need to craft an MOU with state policymakers and local unions that makes it possible to rethink certifications and job descriptions (this would, obviously, be easier for charter networks than for traditional districts) and attract philanthropic or federal support that would underwrite the development and start-up costs.

Anyway, some food for thought—especially after decades of impassioned attempts to fix Horace Mann's familiar schoolhouse have failed to deliver the hoped-for results.

Frederick M. Hess is director of education policy studies at the American Enterprise Institute and author or editor of books including *The Same Thing Over and Over*, *Education Unbound*, *The Customized Schoolhouse*, and *Breakthrough Leadership in the Digital Age*.

---

[1] Matthew A. Kraft and Alison F. Gilmour, "Revisiting the Widget Effect: Teacher Evaluation Reforms and the Distribution of Teacher Effectiveness," *Educational Researcher* 46, no. 5 (July 2017): 234-249, https://scholar.harvard.edu/mkraft/publications/revisiting-widget-effect-teacher-evaluation-reforms-and-distribution-teacher.

[2] Brian M. Stecher et. al, "Improving Teaching Effectiveness" (Santa Monica: RAND Corporation, 2018), https://www.rand.org/content/dam/rand/pubs/research_reports/RR2200/RR2242/RAND_RR2242.pdf.

[3] Bettina Fabos, *Wrong Turn on the Information Superhighway: Education and the Commercialization of the Internet* (New York, NY: Teachers College Press, 2004), 1, http://www.uni.edu/fabos/publications/wrongturnch.1-history.pdf.

[4] Larry Cuban, *Teachers and Machines: The Classroom Use of Technology since* 1920 (New York, NY: Teachers College Press, 1986), 19.

[5] Thomas D. Snyder and Charlene M. Hoffman, *Digest of Education Statistics, 2001* (Washington, DC: National Center for Education Statistics, 2002), http://nces.ed.gov/pubs2002/2002130.pdf

[6] "Table 208.20. Public and private elementary and secondary teachers, enrollment, pupil/teacher ratios, and new teacher hires: Selected years, fall 1995 through fall 2026," *Digest of Education Statistics*, National Center for Education Statistics, March 2017, https://nces.ed.gov/programs/digest/d16/tables/dt16_208.20.asp?current=yes. See also "Table 318.10. Degrees conferred by postsecondary institutions, by level of degree and sex of student: Selected years, 1869-70 through 2026-27," *Digest of Education Statistics*, National Center for Education Statistics, March 2017, https://nces.ed.gov/ programs/digest/d16/tables/dt16_318.10.asp.

[7] "Table 1, National employment and wage data from the Occupational Employment Statistics survey by occupation, May 2018," *Occupational Employment and Wages, May 2018*, Bureau of Labor Statistics, May 2018, http://www.bls.gov/news.release/pdf/ocwage.pdf.

[8] "Average Number of hours and percentage of the student school week that regular full-time public school teachers of first- through fourth-grade, self-contained classrooms spent on each of four subjects, total instruction hours per week on four subject, total time spent delivering all instruction per week, and average length of student school week: Selected years 1987-88 through 2015-16," National Teacher and Principal Survey, National Center for Education Statistics, https://nces.ed.gov/surveys/ntps/tables/ntps1516_20180125001_t1n.asp.

[9] Benjamin Scafidi, *Back to the Staffing Surge: The Great Teacher Salary Stagnation and the Decades-Long Employment Growth in American Public Schools* (Indianapolis: IN: EdChoice, 2017).

[10] Ibid.

[11] "About the Opportunity Culture Initiative," Public Impact, accessed June 7, 2018, http://www.opportunityculture.org/our-initiative/.

[12] Kurt VanLehn, "The Relative Effectiveness of Human Tutoring, Intelligent Tutoring Systems, and Other Tutoring Systems," *Educational Psychologist* 46 (2011), no. 4: 197-221, https://www.tandfonline.com/doi/abs/10.1080/00461520.2011.611369.