

Education

Closing the talent gap: Attracting and retaining top-third graduates to careers in teaching

An international and market research-based perspective



Acknowledgements

A number of the world's top-performing school systems have made great teaching their 'north star.' They have strategic and systematic approaches to attract, develop, retain, and ensure the efficacy of the most talented educators, and they make it a priority to attract and retain top graduates to a career in teaching. The aim of this paper is to describe how these high-performing school systems have accomplished this, and to share the results of original market research on what it would take to attract and retain top students to teaching in the United States.

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The U.S. could dramatically increase the portion of top third new hires in high needs districts.

Executive Summary

When McKinsey & Company analyzed “How the World’s Best School Systems Stay on Top” (2007), we found a few common themes. Perhaps the most important was that “the quality of an education system cannot exceed the quality of its teachers.” This simple statement conveys a profound truth—and masks considerable complexity. Research has shown that of all the controllable factors in an education system, the most important by far is the effectiveness of the classroom teacher. The world’s best-performing school systems make great teaching their “north star.” They have strategic and systematic approaches to attract, develop, retain, and ensure the efficacy of the most talented educators—and they make sure great teachers serve students of all socio-economic backgrounds.

The U.S. does not take a strategic or systematic approach to nurturing teaching talent. Buffeted by a chaotic mix of labor market trends, university economics, and local school district and budget dynamics, we have failed to attract, develop, reward or retain outstanding professional teaching talent on a consistent basis.

Fortunately, improving “teacher effectiveness” to lift student achievement has become a major reform theme in American education. Many school districts and states, including some “Race to the Top” competitors and other education stakeholders like local teacher unions and charter management organizations, are finding new ways to measure, evaluate, reward, coach, and replicate effectiveness in teaching. Yet most such efforts focus either on improving the effectiveness of teachers who are already in the classroom—that is, people who have chosen teaching given the current nature of the profession—or on retaining the best performers and dismissing the least effective. Little attention has been paid to altering the value proposition of

teaching to draw young people with strong academic backgrounds to the career.

McKinsey’s work with school systems in more than 50 countries suggests this is an important gap in the U.S. debate, because the world’s top performing school systems—Singapore, Finland and South Korea—make a different choice. They recruit, develop and retain what this report will call “top third+” students as one of their central education strategies, and they’ve achieved extraordinary results. These systems recruit 100% of their teacher corps from the top third of the academic cohort, and then screen for other important qualities as well. In the U.S., by contrast, 23% of new teachers come from the top third, and just 14% in high poverty schools, which find it especially difficult to attract and retain talented teachers. It is a remarkably large difference in approach, and in results.

Paradoxically, U.S. research on whether teachers’ academic backgrounds significantly predict classroom effectiveness is very mixed, and it suggests that merely sprinkling teachers with top-third academic credentials into our existing system will not by itself produce dramatic gains in student achievement. No single reform can serve as a “silver bullet.” Nonetheless, the extraordinary success of top-performing systems suggests a “top third+” strategy deserves serious examination as part of a comprehensive human capital strategy for the U.S. education system. Moreover, given that roughly half of the teacher corps will be eligible for retirement in the next decade, the question “who should teach?” in the U.S. seems especially timely. The research presented here suggests the need to pursue “bold, persistent experimentation” (in Franklin D. Roosevelt’s famous words) to attract and retain top graduates to the teaching profession, so the U.S. can learn whether more teachers with such backgrounds, working in the right school system context, can help

lift student achievement to the levels top-performing nations now enjoy.

This report asks what lessons we might learn from nations that succeed in delivering world-class educational outcomes with top talent in teaching—Singapore, Finland, and South Korea—and what an American version of such a strategy might entail. We conducted market research among teachers and “top-third” college students to understand what it would take to attract and retain such talent, how to do so cost-effectively, and what complementary system changes would maximize the efficacy of such a strategy. Finally, we offer ideas on how to start down a path to achieve this aspiration.

Singapore, Finland and South Korea do many things differently than does the U.S. to recruit and retain top-third+ students. These nations make admissions to rigorous teacher training programs highly selective; some also pay for these programs’ tuition and fees, and give students a salary or a living stipend while they train. In addition, government closely monitors the demand for teachers and regulates supply to match it, so that teachers who complete this selective training are guaranteed jobs in the profession. They offer competitive compensation, so that the financial rewards from teaching suffice to attract and retain top third students given the dynamics of these nations’ labor markets. They offer opportunities for advancement and growth in a professional working environment, and bestow enormous social prestige on the profession. Officials in Singapore, Finland and South Korea view the caliber of young person they draw to teaching as a critical national priority.

McKinsey’s market research with 900 top-third college students and 525 current teachers with similar backgrounds shows that it would take major new efforts for the U.S. to attract and retain more top third+ talent to teaching. Most students see teaching

as unattractive in terms of the quality of the people in the field, professional growth and compensation. Among the 91 percent of top-third college students who say they are not planning to go into teaching, the most important job attributes include prestige and peer group appeal, but compensation is the biggest gap between teaching and their chosen professions. Our research suggests that improving compensation and other features of teaching careers could dramatically increase the portion of top-third new hires in high-needs schools and school districts, and retain these teachers in much greater numbers with complementary changes, such as better school leaders and working conditions.

We have explored cost-effective ways to pursue such a strategy, although they are not necessarily inexpensive. We examined reform scenarios informed by our market research on how many more top-third students would choose to teach if certain aspects of the profession changed, and if such efforts were targeted in various ways, along with some indicative cost scenarios for a large urban district (of 50,000-150,000 students) and an “average” state (representing 1/50th of the U.S. student population). *Please note that these scenarios do not represent recommendations, but are meant to show a range of options for recruiting and retaining top-third students that could inform discussion.*

In one scenario, for example, the U.S. could more than double the portion of top-third+ new hires in high-needs schools, from 14% today to 34%, without raising teacher salaries. In this scenario, teachers would not pay for their initial training; high-needs schools would have effective principals and offer ongoing training comparable to the best professional institutions; districts would improve shabby and sometimes unsafe working conditions; the highest-performing teachers would receive

If teachers drawn from the top third at much greater scale could help close the achievement gap, the economic and social returns could be enormous.

performance bonuses of 20%; and the district or state would benefit from a marketing campaign promoting teaching as a profession. The cost of this scenario for an illustrative large district with half of its schools serving high poverty students might be roughly \$10-30 million per year at current student-teacher ratios; for an “average” state, the cost would be \$66 million (half of one percent of current K-12 spending). If the same scenario was applied to “turnaround” schools—the lowest-performing one in 20 schools targeted by the Obama Administration—which serve roughly 5% of students, a similar result would follow at a cost of \$1-3 million per year in the district, or \$20 million for the state (or two-tenths of one percent of current K-12 spending).

Given the real and perceived gaps between teachers’ compensation and that of other careers open to top students, drawing the majority of new teachers from among top-third+ students likely would require substantial increases in compensation. For example, our market research suggests that raising the share of top-third+ new hires in high-needs schools from 14% to 68% would mean paying new teachers around \$65,000 with a maximum career compensation of \$150,000 per year. At current student-teacher ratios, and applied to all current teachers as well, this would cost roughly \$100-290 million for the large urban district and \$630 million for the average state. It would be considerably less expensive to focus such an effort on “turnaround” schools.

The predictions emerging from our market research are inexact, to be sure. But if our estimates are close to correct, a top-talent strategy would involve substantial costs, and would therefore likely require the country to reexamine many elements of its human capital system, including student-teacher ratios, the basis and structure of teacher compensation over time, and per-pupil school funding formulas

and levels. The cost of top-third initiatives could be reduced significantly, however, by accepting higher student/teacher ratios, raising the salaries of only those teachers deemed effective by comprehensive evaluations, transitioning existing teachers to this pay structure on an “opt-in” basis, or by finding ways to reallocate less effective K-12 spending. Further research might reveal less expensive ways to use prestige and peer groups to attract top talent to high-needs schools for a career, as Teach for America has done for shorter stints, or whether well-defined paths for advancement within the profession could have an analogous impact on retention.

Beyond cost-effectiveness is the question of how the system must change to produce more truly effective teachers—or how to put the “+” in a “top-third+” strategy. The three countries we examine use a rigorous selection process and teacher training more akin to medical school and residency than to a typical American school of education. A U.S. version of a top-talent strategy might aim to transform schools of education directly, give districts the power to demand better-equipped educators, or rely more heavily on identifying effective and ineffective teachers early in their careers. Singapore’s integration of a top-third approach with rigorous performance management systems, moreover, shows these can be mutually reinforcing strategies: a nation need not choose between drawing high-caliber talent to the profession and assuring that this talent delivers results in the classroom. For an American “top-third+” strategy to be effective, it would need to address not only the attraction and retention of top-third graduates to teaching, but also the many levers that support the efficacy of teachers once they are in the classroom.

Our research makes a compelling case for exploring top third+ strategies with pilots in high-needs districts or in a state, perhaps via a new “Race to the Top Third”

grant competition, or through collaborations among school systems, philanthropic institutions, and other education stakeholders. Given the complexity of the issues, and the regional and national dimensions of the talent pool, the research also suggests there would be benefits to creating a National Teaching Talent Plan. A commission assigned to this task might propose next steps and timelines for phasing in changes in how we recruit, prepare, retain, and reward teachers, informed by global best practice.

Progress will require research, experimentation and learning, but the economic and social returns from getting it right could be enormous. McKinsey research last year found that the achievement gap between the U.S. and top performing nations—a burden borne most directly by low-income and minority students—imposes the economic equivalent of a “permanent national recession” on the United States.¹ In our education system research and work in more than 50 countries, we have never seen an education system achieve or sustain world-class status without top talent in its teaching profession. If the U.S. is to close its achievement gap with the world’s best education systems—and ease its own socio-economic disparities—a top-third+ strategy for the teaching profession must be part of the debate.

1 “The Economic Impact of the Achievement Gap in America’s Schools” McKinsey and Company (2009) .

Top performing nations recruit 100% of their new teachers from the top third. In the U.S., it's 23%—and 14% in high poverty schools.

Introduction: A moment of opportunity

American education policy is experiencing one of its most promising moments in memory, with national attention centered on whole system reform for arguably the first time. We are learning important lessons from hundreds of schools that achieve outstanding results with high-poverty students, the Race to the Top competition is beginning to spur innovation at system-wide scale, a broad state-based movement is underway to adopt common standards in core subjects, and new systems of data-driven performance management are being devised or introduced in many districts. Most important, the community of stakeholders who work to boost student achievement is focusing on effective teaching as a central strategy to improve educational outcomes.

Research shows that of all the controllable factors influencing student achievement, the most important by far is the effectiveness of the classroom teacher. Stakeholders now recognize the importance of effective teachers—and of how far we are from a systemic approach to producing them. For example, few school systems evaluate teachers in ways that differentiate them and inform teaching practice with integrity and insight.² Many school districts and states, including Race to the Top competitors, are now working to measure, evaluate, reward, coach, and replicate effectiveness in teaching, and to build a cadre of school leaders who are capable of helping teachers to improve instructional practices. Although many school systems are just beginning the hard work of designing and implementing such human capital reforms, and many have yet to begin, the importance of effective teaching is now central to the U.S. reform debate.

This focus on teachers and teaching is broadly consistent with McKinsey & Company's work with school systems in over 50 countries, and in our global research on school system excellence. Leaders in the world's best-performing school systems believe that the "quality of an education system cannot exceed the quality of its teachers," and they have taken a strategic and systematic approach to attracting, developing, retaining, and training the most talented educators. Each top-performing country accomplishes this in its own way, but they all have the same aim: getting effective teachers in front of students of all socio-economic backgrounds, and retaining those teachers for a career in teaching.

While more Americans now recognize the importance of effective teaching, most of the U.S. initiatives to promote it seek to improve the effectiveness of teachers already in the classroom, not to upgrade the caliber of young people entering the profession. Top-performing nations such as Singapore, Finland and South Korea have made a different choice, treating teaching as a highly selective profession. They recruit, develop and retain what this report will call "top third+" students as one of their central education strategies, and they've achieved extraordinary results.

After recruiting from the top third, these countries rigorously screen students on other qualities they believe to be predictors of teaching success, including perseverance, ability to motivate others, passion for children, and organizational and communications skills. That's the "plus" in top-third+. These countries recognize that coming from the top third of graduates

² Among many recent analyses of the US teaching profession, perhaps the most influential has been *The Widget Effect*, by The New Teacher Project, which documents the stark inadequacy of teacher evaluations.

“Recruiting top students into teaching should be a national objective”

*- Joel Klein, chancellor of schools,
New York City.*

does not automatically translate into classroom effectiveness, and they invest systematically in developing the skills of those they select to teach. At the same time, however, they view high academic achievement as a critical threshold criteria in deciding who will be allowed entry to the profession.³

The U.S., by contrast, recruits most teachers from the bottom two-thirds of college classes, and, for many schools in poor neighborhoods, from the bottom third. Tellingly, relatively little research in the U.S. has addressed this issue, and the research that does exist is decidedly mixed in its conclusions. A growing body of research suggests that a teacher’s cognitive ability, as measured by standardized test scores, grades and college selectivity, correlates with improved student outcomes, particularly in mathematics. Paradoxically, other credible research finds such effects either statistically insignificant or small.⁴ Moreover, recent research on the “value-added” impact of different teachers suggests that such variations are much larger than the effects of any single teacher attribute that can be observed before teachers are in the classroom, leading some to argue that recruiting or selecting great teachers is less important than observing them once in the classroom and either retaining or dismissing them according to their performance.⁵

Research on Teach For America, which recruits top college graduates and screens them for other “plus” factors, suggests that its teachers are more effective on average than other teachers of

similar experience levels, with the largest impact on achievement in mathematics.⁶ As with many other issues in the data-poor U.S. education system, the research is inconclusive, but it does suggest that an increase in “top third+” teaching talent would need to be combined with other system reforms to raise student achievement.

The debate will continue, but it is worth noting that officials in top-performing countries have little doubt that recruiting teachers from the top third+ is critical to their success. They tend to point to superior results rather than research, along with a commonsense notion that effective teaching requires a mastery of subject matter, psychology, and how to tailor pedagogical styles for different students, all of which they consider higher-order skills associated with academic success.

Based on this international evidence, along with the absence of a compelling research consensus in the U.S., we believe that bold system-level experimentation, coupled with rigorous evaluation, would be required to determine the potential for the integration of a “top third+” talent strategy in the panoply of reforms now being undertaken in the U.S. Individual school districts, charter management organizations, and state education systems—collaborating with universities and other teacher training institutions, teacher unions, social entrepreneurs, education philanthropists, and the U.S. Department of Education—could devise and implement strategies to ensure that effective teachers

³ We recognize that “top third” students can be defined in a number of ways. For the purposes of clarity for our market research, top third is defined in this report by a combination of SAT, ACT, and GPA scores.

⁴ For a summary of this research literature visit sso.mckinsey.com.

⁵ For an example of this value-added research, see Gordon, Kane, and Staiger (2006). “Identifying Effective Teachers Using Performance on the Job.” Brookings Institute.

⁶ See, for example, Zeyu Xu, Jane Hannaway, Colin Taylor (2008). “Making a Difference? The Effect of Teach for America on Student Performance in High School.” Urban Institute Working Paper.

are the consistent norm for students of all socio-economic backgrounds in their systems. In tandem, research on the results of these initiatives should inform strategies nationwide.

Several developments make an inquiry into the composition of America's teacher corps timely. More than half of today's teachers—roughly 1.8 million of 3.3 million—will be eligible to retire within the next decade, providing a rare window of opportunity to shape the next generation of teachers.⁷ High-poverty schools have perennially struggled to attract great teachers, particularly in the so-called “STEM” subjects of science, technology, engineering and math. Employers are increasingly demanding that students be equipped with the higher-order skills and critical thinking for the 21st-century workplace. Meanwhile, an achievement gap persists between American students and those in top-performing nations. McKinsey research last year found that this gap—a burden borne most directly by low-income and minority students—imposes the economic equivalent of a “permanent national recession” on the United States.⁸

These opportunities and challenges suggest the moment is ripe to think more closely about the composition of the teacher corps. “Recruiting top students into teaching should be a national objective,” says Joel Klein, chancellor of schools in New York City. “If your human capital isn't at the top, that makes all the other hills harder to climb.”

After briefly reviewing the current situation in the U.S., this report offers case studies of top-performing nations—Singapore, Finland and South Korea—to understand how they recruit and retain top-third+ students. Next, we review the findings of new market research conducted by McKinsey with top-third college students and current teachers in the U.S. This research shows what it would take to attract and retain such students as teachers, and illustrates options for policymakers who seek to adopt top third+ strategies at the school district, state or national level. The report concludes by discussing some implications of these findings for education stakeholders, and by suggesting a program of bold experimentation and further research at multiple levels of the American education system.⁹

7 Richard M. Ingersoll, Ph.D., University of Pennsylvania, original analysis for NCTAF of Schools and Staffing Survey.

8 “The Economic Impact of the Achievement Gap in America's Schools” McKinsey and Company (2009).

9 A companion document containing McKinsey's more detailed findings and analyses is available at sso.mckinsey.com.

The U.S. situation: A profession buffeted by change

The U.S. attracts most of its teachers from the bottom two-thirds of college classes, with nearly half coming from the bottom third, especially for schools in poor neighborhoods. Department of Education data shows that only 23% of new teachers overall—and about 14% of those in high-poverty schools—come from the top third of graduates.¹⁰ This reality, so different from what we find in the world's highest-performing school systems, is not the result of a conscious strategic choice. On the contrary, it is the by-product of the labor market trends of the past 40 years, the economics and culture of higher education and school districts, and budget dynamics.

Experienced observers in the U.S. say this is a dramatic change from the situation up through the 1960s and mid 1970s, when the academic quality of the teacher corps was effectively “subsidized” by discrimination, because women and minorities didn’t have as many opportunities outside the classroom. In addition, the difference in starting salaries between teaching and other professions wasn’t as large. In 1970 in New York City, for example, a starting lawyer going into a prestigious firm and a starting teacher going into public education had a differential in their entry salary of about \$2,000. Today, including salary and bonus, that starting lawyer makes \$160,000, while starting teachers in New York make roughly \$45,000.

The late Sandra Feldman, president of the American Federation of Teachers from 1997 to 2004, and herself a product of this earlier era, was open about the problem in an interview in 2003. “You have in the schools right now, among the teachers who are

going to be retiring, *very smart people*,” she said. “We’re not getting in now the same kinds of people. It’s disastrous. We’ve been saying for years now that we’re attracting from the bottom third.”

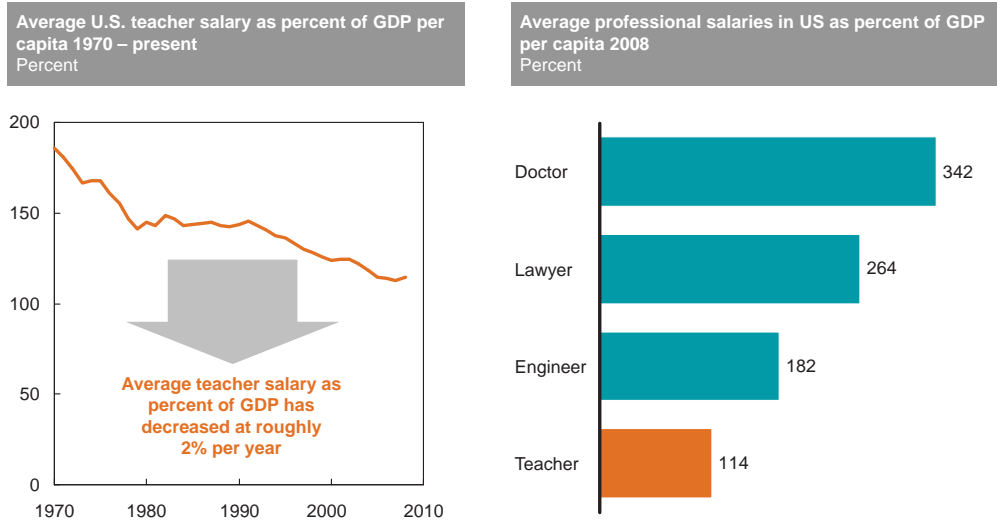
As these observations suggest, U.S. teacher recruitment has been buffeted in recent decades by a kind of “double whammy.” Broader career opportunities have opened up for women and minorities, so that people who in previous eras became teachers now become doctors, lawyers, engineers, scientists and businesspeople. It’s striking to consider that in the 1970s, more than half of college-educated working women were teachers, compared with around 15% today. At the same time, just as these labor market changes have forced teaching to compete with a wide array of lucrative professions, average teacher salaries have fallen significantly as a percentage of GDP per capita over the past 30 years,¹¹ reducing the relative rewards of teaching (see exhibit 1). Today starting teacher salaries average \$39,000 nationally, and rise to an overall average of \$54,000, with an average maximum salary of \$67,000. This does not compare favorably to other professional options for top college graduates, particularly in major metropolitan areas (see exhibit 2 for an international comparison).

The American teaching profession also suffers from a lack of prestige. The Department of Education reports that about 80% of teachers enter the profession through traditional certification paths in schools and departments of education. While some of the nation’s over 1,450 schools, colleges and departments of

¹⁰ Derived from the US Department of Education, NCES, 2001 Baccalaureate and Beyond Longitudinal Survey.

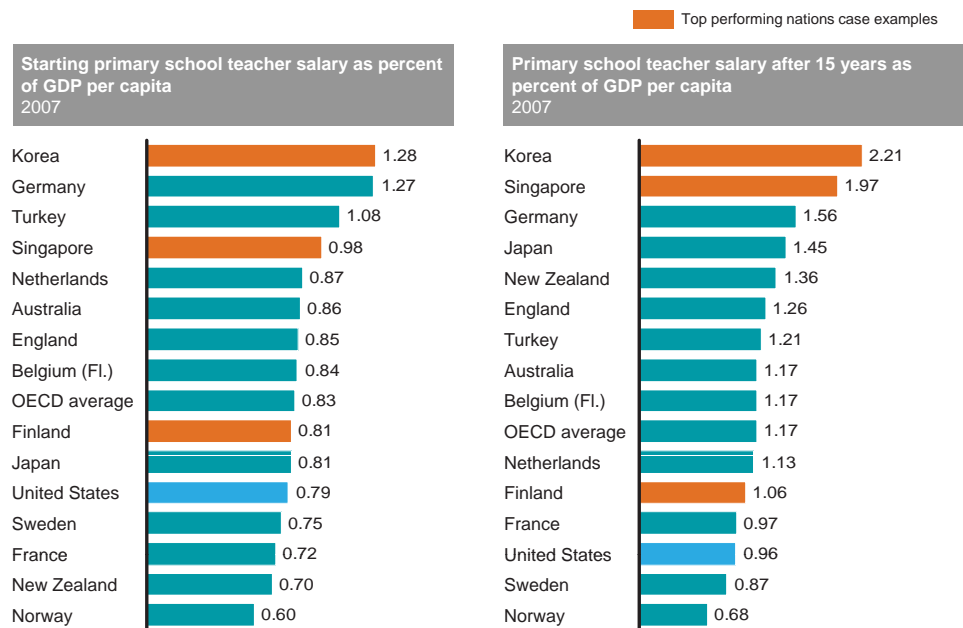
¹¹ This measure amounts to an index that allows easy comparability across professions as well as countries, as discussed later in the report.

Exhibit 1: US teacher salaries as a percent of GDP per capita over time and compared to other professions



SOURCE: National Center for Education Statistics (NCES); US Bureau of Labor Statistics; OECD Statistics

Exhibit 2: International comparisons of teacher salaries



Note: The US ranks 20th of 29 nations for starting salary and 23rd out of 29 for salary after 15 years; all data from OECD except for Singapore figures which come from the Singapore Ministry of Education

SOURCE: OECD Education at Glance 2009. Indicator D3: How much are teachers paid?; OECD Stat Extracts, NCTQ; Singapore Ministry of Education

education offer rigorous training, many are held in low regard. More than half of teachers are trained in schools with low admission standards; many accept virtually any high school graduate who applies.

“Universities use their teacher education programs as ‘cash cows,’” concluded one 2006 assessment, “requiring them to generate revenue to fund more prestigious departments. This forces them to increase their enrollments and lower their admissions standards. Schools with low admissions standards also tend to have low graduation requirements.”¹²

The effect has been pernicious indeed. According to cynics in the U.S., “Those who can, do. Those who cannot, teach.” In 2004, the Teaching Commission’s “Teaching at Risk: A Call to Action” assessed the state of the teaching profession, concluding that “we need to break the cycle in which low-performing college students far too often become the teachers of low-performing students in public schools.” Among its recommendations, the commission called upon college and university presidents to “revamp their teacher education programs and make teacher quality a top priority...[by]raising standards for entry into teacher preparation programs, beefing up the academic content of those programs while also ensuring a connection to real practice, and promoting teaching as an exemplary career path for new graduates who wish to become engaged citizens.”

There are examples in the U.S of top-third+ students being successfully recruited, at least for some period, to the classroom. Teach for America (TFA) is the most prominent. Founded in 1990, TFA will recruit 4,500 of

this year’s roughly 230,000 new teachers entering the profession, directing them to high-poverty schools. Last year, TFA teachers accounted for 13% of all new teachers in the high-needs districts it serves; the organization says it plans to roughly double its annual corps to over 8,000 by 2015.

The program is highly selective. Of the 46,000 students who applied this year, including 12% of Ivy League college seniors, fewer than 10% were accepted.¹³ Teach for America has shown it is possible to create energy and excitement around the mission of serving disadvantaged students, and to create a selective “brand” for a slice of the profession that is sufficiently appealing to top-third+ students to draw them to the classroom, at least for a two- to three-year stint.¹⁴ Some affluent suburban districts and elite private schools also appear to have consistent success recruiting from the top third of college graduates, although formal data is hard to come by.

Some evidence suggests that academic qualifications of new teachers may have improved somewhat in recent years, though there is still cause for concern. A 2007 study by Drew Gitomer of the Educational Testing Service of people taking their Praxis¹⁵ teacher-certification exam found that the mean SAT verbal scores of 27,000 aspiring English, science, social studies, math and art teachers between 2002 and 2005 were higher than a similar group in the mid-1990s, and higher than the average of college graduates; scores for elementary school teachers also rose, but remained well below the national average.

12 The Education Schools Project, “Educating School Teachers” (2006).

13 It is worth noting that Teach for America’s leadership is clear that it does not see itself as a “solution” to the broader teacher recruitment and retention challenge in the U.S; its mission is to build a cadre of rising leaders who have a passion for equal educational opportunity, and first-hand experience of the challenges of high needs schools.

14 In addition, while its recruits are not all drawn from the top-third, The New Teacher Project has created a highly selective Teaching Fellows program in 19 cities including Washington D.C., New York, and Chicago. In 2009, TNTP recruited 2100 teachers from 29,000 applicants.

15 This data refers to prospective teachers who took the Praxis exam. This includes only exam-takers who did sufficiently well to be licensed. Not all Praxis test-takers become teachers and vice versa, so this data should only be used as a proxy sample for the teaching corps.

McKinsey requested a new analysis of this 2007 sample for this report that leaves grounds for both hope and worry. The good news is that 53% of prospective science and math teachers in the sample had SAT scores above 1150, placing them in the top third. The bad news is that only 21% of prospective elementary school teachers, who comprise most of the teachers in the U.S., were in the top third. Overall, just 30% of prospective teachers in the ETS sample scored in the top third—a modest improvement from the 23% figure found in Department of Education data, but a far cry from the 100% seen in Singapore, Finland and South Korea. Meanwhile, high-poverty schools in particular still struggle mightily, plagued by disproportionate numbers of inexperienced staff, teachers without majors or certifications in the subjects they teach, crippling shortages of math and science teachers, and high turnover of the effective teachers they do recruit.

Despite pockets of top-third recruiting success, and reports from many districts that challenging economic conditions have led more able college students to seek teaching posts, the general U.S. practice of recruiting lower-performing graduates into teaching stands in contrast to practices in the best-performing nations in the world. A look at three such countries can reveal systematic approaches they find successful.

Top performing nations: How they do it

Singapore, Finland, and South Korea are three of the most successful school systems in the world, performing far better on international assessments on mathematics, science, and reading than the U.S. Finland ranked first in the most recent 2006 Program for International Student Assessment (PISA) results for science, and second in the results for math and reading. What's more, the achievement gap between the best and worst Finnish schools is vanishingly small. South Korea ranked first in reading and fourth for Math. The astonishingly rapid progress of South Korean education over the past 40 years has been virtually unprecedented. While Singapore does not participate in PISA, it ranked in the top three on math and science on the quadrennial Trends in International Mathematics and Science Studies assessments in 2007, after having come in first place in 1995, 1999 and 2003. (See exhibit 3). Only half of Singapore's students entering elementary school speak English at home, yet virtually all learn to read and write English fluently by age 9.

"Although none of these countries lacks problems and challenges," writes Stanford professor Linda Darling-Hammond in her 2010 book, *The Flat World and Education*, "each has created a much more consistently high-quality education system for all its students than has the United States." Each of these countries has an education system whose various elements reinforce each other, with recruiting and retaining top third+ talent in teaching at the core of their approach. While each country cultivates its teaching corps in different ways, they also share common practices that make the profession appealing to top students.¹⁶

Singapore: An integrated talent strategy

"It is a no-brainer that a nation would want to have a top-quality teaching force," Sing Kong Lee, Director of Singapore's National Institute of Education (NIE), told us. "To get there, you have to do two things. First, attract the best people to the profession. Second, once they're in, you give them the best training."




Singapore has an integrated approach to making the teaching profession appealing to top students. It starts with compensation, and with a particular philosophy of what compensation is designed to accomplish.

"Compensation matters when you want to get those people who are high quality, have some interest in teaching but also many other career choices," says Lu Cheng Yang, Director of Personnel in the Ministry of Education.

"You want them to say, 'Okay, the pay is not too bad so I will try; I'll give myself a chance.' And hopefully within the first five years you help them to discover the passion for teaching and they realize that this is really something that is very meaningful they can do. And then they will join you for the rest of their lives... You really want to make the difference for those who are good and who have different choices, [such as becoming] an accountant, an engineer, maybe even a doctor or a lawyer."

Singapore monitors starting salaries in the market to assure that new teachers are paid competitively. While the salary trajectory is not steep, the government nonetheless wants teachers who stay in the profession to have reasonably competitive

Exhibit 3: Teacher recruiting pools for select top-performing nations

Country	Ranking (by 2006 PISA results)			Recruiting pool
	Science	Reading	Math	
 Finland	1	2	2	<ul style="list-style-type: none"> All teachers recruited from top 20% of high school academic cohort
 South Korea	11	1	4	<ul style="list-style-type: none"> Primary school teachers recruited from top 5% of high school academic cohort
Ranking (by 2007 TIMSS results)				
 Singapore	3 ¹		3 ¹	<ul style="list-style-type: none"> All teachers recruited from top 30% of high school academic cohort

¹ Singapore does not participate in PISA, but it ranked third among countries on Math and Science in TIMSS 2007, and first on Math and Science in TIMSS 1995, 1999, and 2003

SOURCE: PISA 2006; TIMSS 2007; McKinsey research; interviews

career earnings compared to their university peers by the time they reach age 40 or 50. To help them keep pace, the country offers retention bonuses at recurring intervals. In a career that may span 30 years, a teacher may receive a \$10,000 to \$36,000 cash payout every three to five years. This helps explain why teacher attrition in Singapore is 3% annually, compared to about 14% in the U.S. overall and 20% in many high-poverty schools.

Compensation also includes merit-based incremental increases, performance bonuses and outstanding contribution awards, which can range from 10% to 30% of base salary. Bonuses and promotions are determined by annual evaluations under a rigorous performance management system, a year-round process which includes a review of results, teaching competencies, individual training and development plans, contributions to innovation and continuous school improvement,

and more. The process becomes a template for coaching and mentoring; teachers believe it helps them become better teachers.¹⁷

Singapore sends additional financial signals about teaching's importance long before prospective teachers set foot in a classroom. Students accepted to prepare for teaching at the prestigious NIE have their tuition and fees fully covered and earn a salary while they train. If they enter training at the graduate level, this salary matches what they would have earned in a civil service job.

Singapore's teaching training program accepts roughly one in 8 applicants, screening them along dimensions believed to influence student performance. Strong academic accomplishment is a prerequisite; applicants must fall within the top 30% of their academic cohort based on grades, national examinations and the teacher entrance proficiency exam. Roughly 80% of

17 For more information, see Aspen Institute's 2008 report: "Rethinking Human Capital in Education: Singapore as a Model for Teacher Development."

“People know that if you’ve been trained as a teacher you must really be something special”

- Finland education expert

candidates in recent years have already completed a primary university degree. Applicants are tested on literacy, which the Ministry of Education sees as the top measurable predictor of student outcomes. Qualitative assessment is next: the NIE tests both pedagogical skills and professional values through interviews and observation by experienced educators before students are selected and throughout their time in training. A small number of students in the training program are subsequently found to have insufficient potential to teach, further winnowing the corps before they enter classrooms. Graduates of teacher training are guaranteed employment and required to serve for three to six years in Singapore schools, or to repay the cost of their training. The Ministry of Education and the NIE jointly administer a single, state-wide selection process, ensuring consistently high standards for recruits.

Singapore has also begun “proactive talent management,” including outreach to high school students “to make them feel that teaching is not only noble but glamorous,” in the words of one official. High-schoolers typically graduate in December in Singapore, and university doesn’t start until the following July or August. Most young men do their required national service during this period, but many young women try something else. Singapore offers internships for promising high school students who are thinking about applying for teaching scholarships to teach in a school for 6 to 8 weeks during this interval. If they do well in the program, their odds of receiving scholarships are high.

Singapore offers three career paths with continuous professional development opportunities and growth that make teaching attractive: a “leadership” track for those who want to help run schools or groups of schools; a “teaching” track for those with a passion for the classroom (which lets them rise from “beginning” to “senior,” “lead” and “master” teacher);

and a “specialist” track, including post-graduate training for people who want to serve as curriculum or assessment specialists.

Singapore also provides teachers with time for collaboration and professional development. A few senior and master teachers in each school observe and coach other teachers, prepare model lessons and materials, advise on teaching methods and best practices, organize training, and support newly qualified teachers and trainees, in addition to their regular course-load. All teachers have time each week for professional collaboration and receive 100 hours of paid professional development each year. Officials say these commitments to professional development help attract candidates and raise the status of the profession.

Singapore goes to great lengths to honor teaching’s role in society. Every September 1, Teacher’s Day, the President of the Republic invites a select group of teachers to the presidential grounds for a party to recognize their contributions. Several teachers receive highly publicized awards for their outstanding work.

Finland: Autonomy and trust

Not only does Finland have one of the world’s top-performing school systems overall, but the performance of the bottom 10% of Finnish schools is better than the median scores for the OECD. In other words, Finland has virtually no low-performing schools. When asked to explain this success, an official at the National Board of Education put it plainly: “three words...teachers, teachers, teachers.”

Like other top-performing countries, Finland relies on an extremely competitive process to select who will be permitted to teach before they enter education school. Teachers are required to obtain a master’s

degree in a five-year program, and applicants are generally drawn from the top 20 percent of high school graduates. Students are first screened based on their performance on an essay-based high school matriculation exam that covers six to eight subjects in depth. Top candidates are then eligible to take another exam, based on a selected reading of educational literature. Next, they write an essay explaining why they want to teach, and why they are suited to excel. The best candidates then go through a series of interviews to judge their fit for teaching, on factors such as motivation and emotional intelligence. Candidates also participate in a kind of micro-teaching exam -- an observed clinical activity (similar to school situations) to satisfy evaluators that they are good with children.

Only about one in ten applicants is accepted to become a teacher; acceptance rates at the elementary school teacher education program at the prestigious University of Helsinki are closer to one in 15. The government pays for the graduate-level training teachers receive, plus a living stipend. Partly owing to its prestige, teaching is the most popular career choice and the most admired profession among top students, outpolling law and medicine. A 2008 survey even found that men in Finland say teaching is the most desirable profession for a spouse (women ranked male teachers third, after medical doctors and veterinarians). Corporations actively recruit teachers who move on from the classroom. "People know that if you've been trained as a teacher you must really be something special," says Pasi Sahlberg, a longtime Finnish educator and official, and author of the forthcoming book, *Finnish Lessons: What the World Can Learn from Educational Change in Finland*. "It's a safe bet for Nokia and other top firms."

Finland gives teachers a notable degree of autonomy, trusting them to deliver great student outcomes.

Teachers have wide decision-making authority in school policy and management, textbooks, course content, student assessment policies, course offerings, and budget allocations within the school. A national curriculum framework prescribes *what* students must learn, but discretion over *how* is left to the professionals. "We trust our teachers," runs the Finnish refrain.

Salaries are modest, starting at around 81% of GDP per capita, slightly above the US at 79%. OECD data suggest that Finnish teachers work far fewer hours than their European counterparts, but Finnish experts say this is misleading, because it doesn't take into account the community and family outreach that teachers view as part of their role. Unlike Singapore, Finland does not emphasize multiple career paths for teachers.

"People choose it because they want to teach in the classroom," says author Sahlberg. Also unlike Singapore, there are no teacher performance evaluations, and no "performance pay" or bonuses. "Anybody who suggested it would be laughed at or hanged," says one senior education official. The emphasis is on self-evaluation, with teachers seeking advice individually to improve their practice. Teachers are expected to drive their own development, not the system.

"Teaching as an extremely competitive and prestigious profession is obviously quite a contrast to the state of things in the United States," observed education analyst Kevin Carey in the *Chronicle of Higher Education*, after studying Finland's system in 2008. "If you know you can trust people, it eliminates the need to do a lot of other things.

"If you can convince your best students to try to become teachers, for example—even though only 10 percent will be accepted and they'll have to spend five years getting a master's

“The quality of an education system cannot exceed the quality of its teachers.”

- South Korea official

degree — you reap a lot of benefits. Teacher training can be rigorous because the students are smart enough to handle it. Teachers can... work autonomously to achieve common curricular goals. Maybe you don't need to pay them more than a middle-class wage (although this is complicated by Finland's very different labor market and compressed range of salaries throughout the economy relative to the American labor free-for-all). The fact that bad teachers are hard to fire is only a minor annoyance, because there just aren't many bad teachers.”

South Korea: Salary and security

South Korea places great emphasis on selectivity in entering the profession for elementary rather than secondary schools, and on providing the highest teacher salaries in the world. The profession is also bolstered by deep cultural respect. “Don't even step on the shadow of a teacher,” runs one Korean proverb. When explaining their talent strategy, and what's accounted for the extraordinary rise in the nation's educational performance in recent decades, Korean officials put the matter simply: “The quality of an education system cannot exceed the quality of its teachers.”

The profession's rare combination of job security, attractive salary, good vacations, and social prestige helps explain why teaching is the most popular career choice among young South Koreans. Primary school teachers must get a four-year undergraduate degree in education at one of 12 national universities of education overseen by the government, or one private university. Admission to these programs is based on the results of the college entrance exam, an SAT equivalent, with the cutoff score at the top 5%. Several decades ago teaching programs offered sharply discounted tuitions

to help attract the best students; today, however, students pay full fees themselves. The number of slots is carefully managed by government quota to match demand, which makes it virtually certain that graduates will find jobs after training.

By contrast, when it comes to secondary school teachers, Korean training facilities graduate five times as many teachers as the system requires. Why this difference, and this massive oversupply? In the 1960s and 1970s, Korea faced severe shortages of secondary school teachers, and government chartered many new institutions to train them. Supply and demand stabilized in the mid-1980s, and surpluses soon emerged, but universities have resisted government efforts to close down “excess” programs. Although secondary school teachers often enjoy great status because of their subject matter expertise, research shows that this perennial oversupply makes teaching in secondary education much less attractive to high-performing students—and that the quality of secondary teachers is now lower than that of elementary school teachers and declining.

South Korea's relatively large classes of about 35 students each help the nation pay teachers considerably more than other top-performing countries: about 1.2 times GDP per capita for starting teachers and more than 3.4 times GDP per capita for maximum salaries. In the U.S., this would translate into salaries from \$55,000 to \$155,000. According to Linda Darling-Hammond, Korean teachers' earnings place them between engineers and doctors, with purchasing power in the local economy nearly 250% higher than that of American teachers.

Salary, based on length of service, progresses steadily. And Korean teachers, after being selectively screened on the front end, are guaranteed a teaching position for life—“the right to teach”. Turnover is just over 1% annually. In recent years, partly out

of concern that lifetime employment may reduce teachers' motivation to excel, Korea has experimented with modest performance bonuses. Teachers are grouped into three categories based on criteria determined by each school in line with guidelines from the central government. For now, with bonuses varying little between top performers (about \$3,000) and lower performers (about \$2,200), the program's effectiveness is unclear.

"Korea has become more conscious about career paths and professional development in recent years," adds Ee-gyeong Kim, a professor of education at Chungang University. For example, the country is piloting a program for advancement to "master teacher" designation, and it has introduced new annual teacher evaluations aimed at promoting professional growth after five years of piloting. Teachers will be evaluated by peer teachers, administrators, students and parents at least once a year, and will participate in professional in-service education based on the feedback.

Clearly, all three countries can help the U.S. consider what it will take to transform our education system's performance. All three view the caliber of young person they attract to teaching as a career as a critical national priority. We now turn to the question of what this would take in the U.S.

Ignoring these nations' examples would be to stake America's future on the idea that the U.S., alone among nations, can prepare its children to thrive in a global economy while relying on lower-achieving graduates to teach them.

Framing a pragmatic top third+ talent conversation in the United States

As these case studies suggest, and McKinsey's experience across dozens of nations confirms, a top third+ talent strategy is a critical ingredient of the teacher effectiveness agenda in the world's best-performing school systems. The U.S. begins with different institutional and cultural contexts, of course. The governments of Singapore, Finland and South Korea control nearly every aspect of teacher training and talent management. In the U.S., teacher education and talent management are fragmented and decentralized. The master's degrees required to teach in a rigorous regime like Finland's improve student learning; research suggests that the master's degrees often pursued in the U.S. as a "ticket punched" to get salary increases have no such effect.

Top-performing countries have a deep history of prestige attached to teaching; the U.S. does not. Other countries fund schools for the poor and the affluent roughly equally; in the U.S., a tradition of locally-based school finance leads to wide disparities in per pupil funding — a relevant factor when the chief component of school budgets is teacher salaries. Most important, perhaps, is that these countries have undergone decades of effective educational system reform that has positioned them to move from strength to strength. In too many U.S. districts, especially those serving disadvantaged children, this systemic reform journey is just beginning, and the hole they find themselves in is deep.

All this means that any shift toward a top-third talent strategy in the U.S. would take years, require bold experimentation and thoughtful design, and remain one aspect of a multi-pronged effort across the whole system. Yet despite skepticism among some U.S. researchers about the academic evidence supporting such a strategy, we believe it would be a mistake not to take its potential seriously. Ignoring these nations' examples would be to stake America's future on a questionable form of American exceptionalism—in this case, on the idea that the U.S., alone among nations, can prepare its children to thrive in a global economy while relying on lower-achieving graduates to teach them.

How can we adapt global best practice to the American context? In our view, this question raises two more. First, if the country decided to experiment boldly, what would it take to attract top third+ talent in the U.S. to teaching as a career? Second, armed with such information, how could top third+ initiatives in the U.S. be pursued in a cost-effective (though not inexpensive) way; or, put another way, what are the options for managing costs when virtually any reform touching some meaningful portion of the nation's 3.5 million teachers will be expensive and challenging?

As an initial step toward answering the first question, McKinsey examined the commonalities across the global best-performing systems and conducted original market research. We now turn to this fact base.

Applying lessons from global best-performing systems to the U.S.

Although Singapore, Finland and South Korea follow their own unique strategies to recruit and retain top third+ students, they share some common practices that offer lessons for the U.S. (see exhibit 4).

Key finding: The world's best-performing systems recruit 100% of their teachers from the top tier of graduates, and create a mutually reinforcing balance between high selectivity and attractive working conditions

First, all of these top-performing countries **make admissions to teacher training highly selective**, accepting only a small fraction of applicants to teacher training colleges. The government monitors the demand for teachers and funds teacher education to match it, so that those admitted into training are assured jobs. They thus create a selectivity “gate” early in the pipeline of teachers’ development, and then spend several years ensuring that university students whom they know will enter teaching are well prepared, with rigorous, extensive and practical training. Most American teachers, by contrast, enter the profession

Exhibit 4: International comparisons of policies aimed at attracting and retaining teachers

Policies to attract/retain top teachers	✓ Significant priority in the country; best-in-class practices			U.S.
	Singapore	Finland	S. Korea	
1 Selective admissions to teacher training	✓	✓	✓	Most programs not selective
2 Government paid teacher training	✓	✓		Students finance own education
3 Government regulates supply of teachers to match demand	✓	✓	✓	Oversupply of teachers
4 Professional working environment	✓	✓	✓	Variable working conditions
5 Competitive compensation	✓		✓	Compensation not attractive to many students
6 Cultural respect accorded to teaching	✓	✓	✓	Respect not comparable to other nations
7 Teaching considered as a career	✓	✓	✓	Relatively high attrition in early years
8 Robust opportunities for career advancement	✓			Limited opportunities for advancement
9 Performance pay for teachers	✓		✓	Limited performance pay

SOURCE: Interviews; McKinsey research

“We believe that the experience of a teacher is a very valuable asset to retain in the profession”

- Singapore education official

through programs that are not selective at all, and more than half of newly certified teachers—about 100,000 each year—do not enter the profession.

Second, Singapore and Finland **pay for teacher education**, and students receive salaries or stipends while they train. In the U.S., by contrast, students often go into debt to pay tuition at education schools while foregoing the salaries they could earn by working.

Third, the most rigorous selection standards in Finland and South Korea apply to those seeking to become **elementary school teachers**. In the U.S., elementary school teachers are the least likely to come from the top third.

Fourth, top-performing nations foster a **professional working environment** for teachers, ranging from Singapore’s career paths and continuous professional development, to Finland’s trust and autonomy, which Finnish educators analogize to the professional independence enjoyed by doctors. In the U.S., by contrast, the teaching profession often seems “unprofessional”—opportunities for advancement or recognition are few; ongoing training and apprenticeship are often seen as mediocre; and working conditions, especially in high-poverty schools, are frequently a disgrace.

Fifth, the top-performing countries provide **competitive compensation**. South Korea emphasizes salary the most, with Singapore being especially strategic in the use of bonuses and retention incentives. All three countries assure that the financial rewards from teaching attract and retain top-third students given the dynamics of their labor markets (although in Finland, teachers’ salaries are

considerably lower than in the other two countries). By contrast, top American students see teacher pay as unattractive.

Sixth, top-performing nations accord **enormous cultural respect** to teaching and teachers, including high-profile initiatives to recognize the profession’s contribution to society. Leaders in the U.S. routinely offer rhetorical tributes to teaching, but the profession enjoys nothing like the exalted cultural status it holds in these nations.

Estimated annual teacher turnover

Percent

South Korea	1%
Finland	2%
Singapore	3%
US (all schools)	14%
US (high need schools)	20%

A final difference is the view of **teaching as a career**. Some in the U.S. who hope to attract top third+ students to teaching think it may not be possible to retain them for more than, say, three or five or seven years. In addition, they note that because some research in the U.S. suggests a teacher’s effectiveness plateaus (in terms of student achievement gains) after just three years, there’s a case for not worrying about retaining such talent for longer stints.

Singapore sees it differently. “We believe that the experience of a teacher is a valuable asset,” says Sing Kong Lee. “They need to have a career of 15 to 20 years to make the most significant contributions,” adds Lu Cheng Yang, referring to a stint that may include advancement along different career paths.

“There’s no belief that a teacher’s effectiveness stops growing after the first several years.”

When asked if Finland seeks to recruit top talent to teaching for a full career, as opposed to five or seven years, Pasi Sahlberg found the question almost unintelligible. “Yes, of course we recruit for a career,” he said.

These policies reinforce one another and help account for the attractiveness and prestige accorded the teaching profession, and for the success of these nations’ top talent strategies.

Market research findings on U.S. “top third” college students and current teachers

To complement the international studies, and to learn more about what would draw top-third American students to teaching as a career, we surveyed 1,600 college students and current teachers, most of whom are or were top-third students. We surveyed top-third students across subject majors, race and ethnicity, gender, and geographies; teacher respondents were split evenly between high-poverty and low-poverty schools.¹⁸ We first asked them about their perceptions of teaching and other careers.

Top third perceptions

Key finding: It would take major new efforts for the U.S. to attract more top third+ talent to teaching because they perceive the profession as less desirable than others

Today only 9% of top-third college students say they plan to go into teaching.¹⁹ We asked the other 91% what they looked for in a career, and how they ranked attributes of teaching compared to the career they planned to pursue. The most important job attributes for top-third students include, in order, the quality of co-workers, prestige, a challenging work environment, and high quality training. For this group, teaching falls short (see exhibits 5 and 6). Even though on important attributes, such as prestige²⁰ and enjoyment of day-to-day work, teaching does somewhat better, it still falls substantially behind the students’ chosen professions.

For example, only 39% of top-third students who don’t plan to go into teaching agree that teaching “attracts the type of people I would want to work with,” compared with 77% who believe that their career of choice would do this. Similarly, while 66% agreed that they would be “proud to tell people [teaching] was my job,” 95% said they’d say this for their career of choice. Just 11% agreed that “only top students can get jobs in this [teaching] field” (see exhibit 7).

Financial security also mattered, with 4 of the top 10 attributes related to compensation coming in at 6th, 7th, 9th, and 10th places. Although compensation ranks somewhat lower than quality of co-workers among the top-third students (except for African-American and engineering students, for whom money plays a much more important role), the largest gaps between how top students perceive teaching and how they perceive their chosen career are along financial dimensions. As exhibit 8 shows, only 10% to 18% of top-third students say teaching offers a competitive starting salary, pays appropriately for the skills and effort they would bring, or offers a salary that would increase substantially over the next seven to ten years. Only one in three think teaching pays enough to support a family, and more than half believe they could earn more as a garbage collector.

Seen another way, students say by margins of 53% to 62% that their chosen profession meets their financial goals in ways teaching does not. (Interestingly, as exhibit 8 shows, while top-third students who are

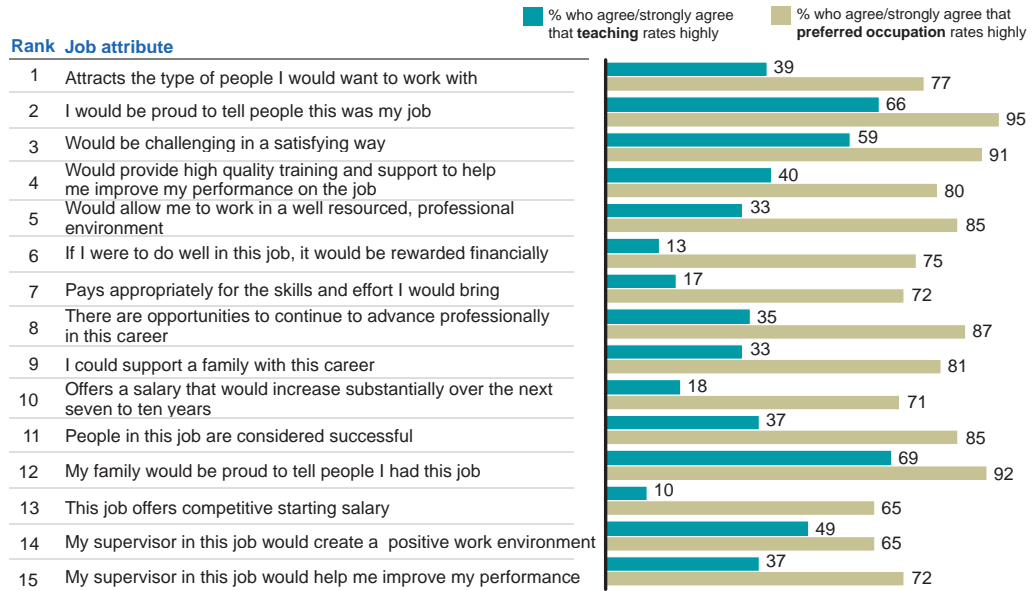
¹⁸ For details on the research subjects and methodology, please visit sso.mckinsey.com.

¹⁹ This compares to 17% of bottom third students and 13% of all students.

²⁰ For which proxy questions were used, such “People in this job are considered successful,” “My family would be proud to tell people I had this job,” “I would be proud to tell people this was my job,” “Only top students are able to get jobs in this field,” and “Anyone can get a job in this field”.

Exhibit 5: Perceptions of teaching vs. preferred occupation for top third students not planning to teach

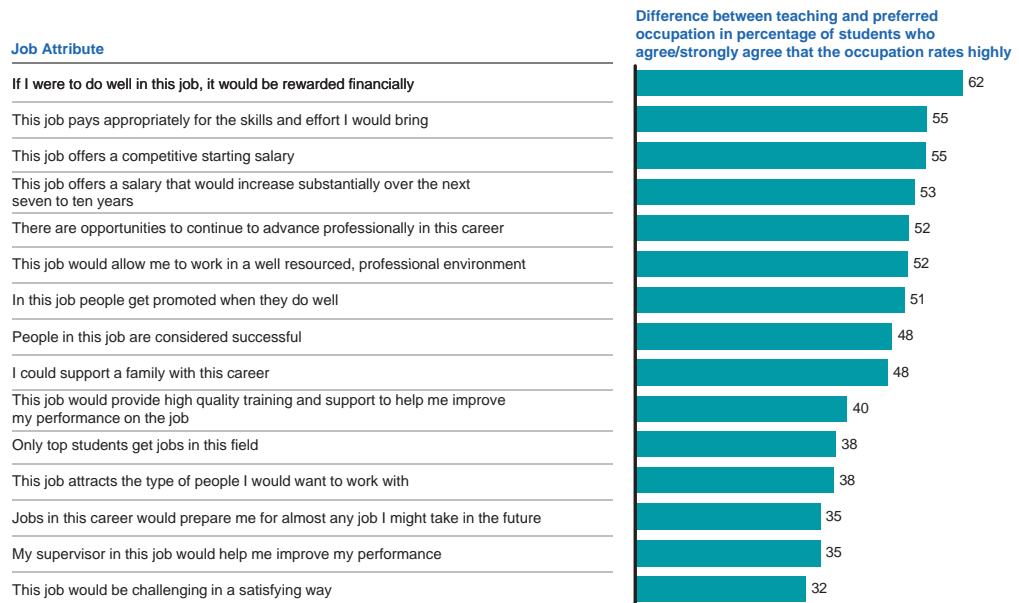
Top third students not planning to teach: perceptions of teaching vs. their preferred occupation (ranked by importance of attribute)
Percent of respondents who agree or strongly agree with statement



SOURCE: Market research; McKinsey analysis

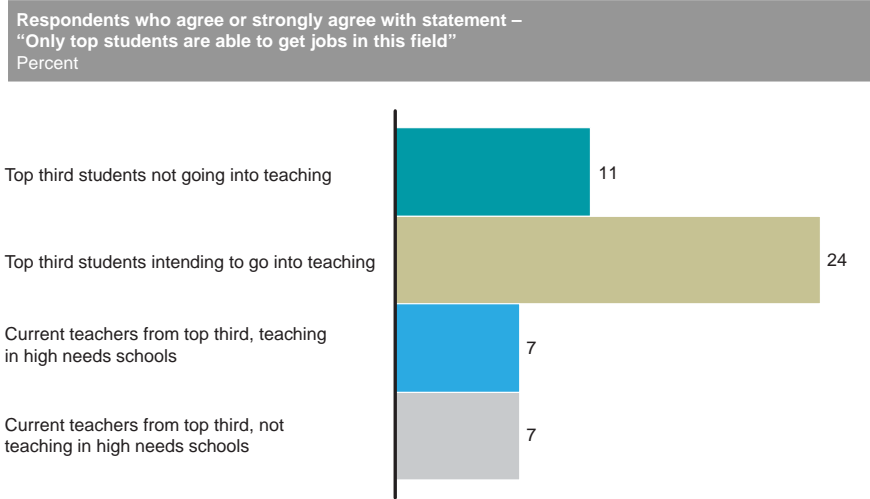
Exhibit 6: Gap between perceptions of teaching vs. preferred occupation among top third students not planning to teach

Top third students not planning to teach: gap between their perceptions of teaching vs. preferred occupation (Ranked by size of gap)
Percent of respondents who agree or strongly agree with statement



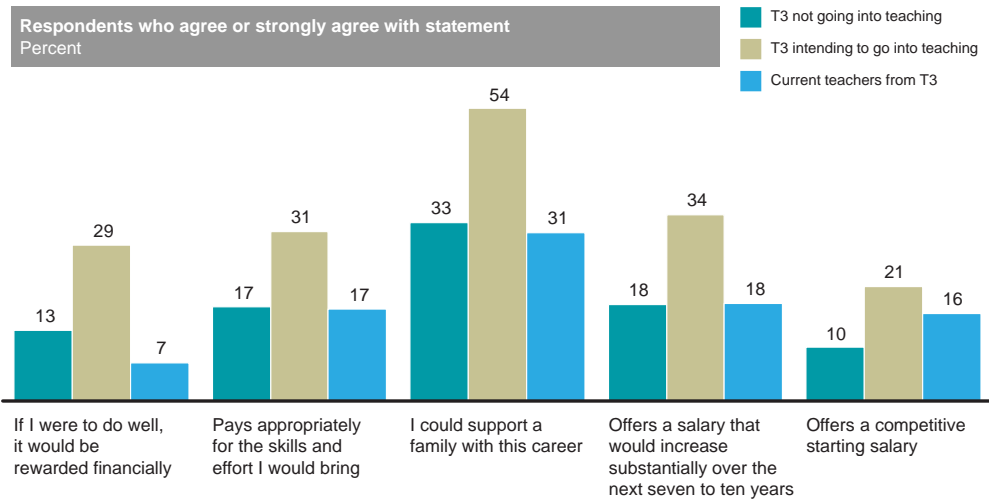
SOURCE: Market research; McKinsey analysis

Exhibit 7: Perceptions on selectivity of teaching as a profession



SOURCE: Market research; McKinsey analysis

Exhibit 8: Perceptions on financial rewards of teaching



SOURCE: Market research; McKinsey analysis

planning to teach are more optimistic about the financial aspects of the career, current teachers drawn from the top third appear to shed that optimism once they've actually been teaching).

Key finding: Most top-third students underestimate teacher compensation

Misperception abounds. More than half of respondents believed that teachers' starting salaries were under \$30,000, when the national average is actually \$39,000, comparable to what 25% of top-third students expect as starting salaries in their preferred profession. Similarly, fully three quarters of top-third students not planning to teach believe that teachers' maximum salary is below the current national average of \$67,000 per year—and again a quarter of these students expect to earn less than what teachers will earn at the peak of their earning potential. Correcting such misperceptions will not be

enough to shift the tide, however, because money is just one factor in the choice of profession.

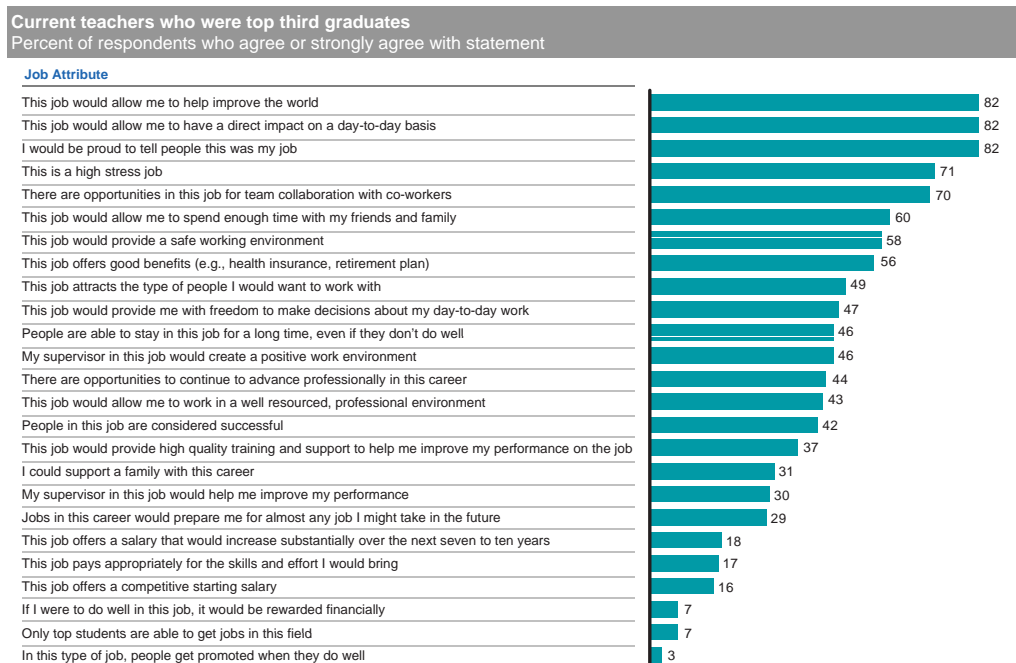
The bottom line? Given their perceptions of the profession, it is hardly surprising that few top-third students become teachers.

What about those top-third students who do go on to become teachers? As shown in exhibit 9, their view of teaching maps closely to those of college students. On the positive side, 82% say that they're proud to tell people that teaching is their job.

On the negative side, while 44% of current teachers with a "top third" background agree that teaching will support professional advancement, only 3% believe teachers get promoted when they do well. Only a third believe they receive high-quality training, or that their supervisors help improve their performance.

These teachers further agree with the college students on compensation, with only 30% believing

Exhibit 9: Perceptions of teaching among current teachers



SOURCE: Market research; McKinsey analysis

that they can support a family with a career in teaching, and half of that number agreeing that teaching offers a competitive starting salary. They are also somewhat skeptical of many of their current colleagues. Only 7% of teachers who were top-third students agree that “only top students are able to get jobs in this field,” and just under half believe that teaching attracts the type of people they want to work with.

Top-third choices

What if key features of the profession changed? To judge the impact on top students’ career decisions, we used “choice-based conjoint analysis,” a technique often used in consumer marketing. We showed students pairs of “packages” describing potential teaching jobs in which key features of the career were varied, to see how their choices would be influenced by changes in such things as starting

and maximum salaries, professional development and school principals, a marketing campaign to enhance the prestige of teaching, and the availability of government-paid training.

Students chose their preferred options when presented with a series of a dozen different paired “teaching packages”; the quantifiable values their choices reveal allow us to estimate how many top-third students would choose to become teachers based on changes in particular variables of the career, or what we call “levers.” (The different “levers” tested in the survey are described in the accompanying box.)

To be sure, such research cannot offer “scientific” insights, but many leading companies use the technique to shape decisions about their product and service offerings, and about salaries and other benefits, and we believe it offers strong directional insight about how to make teaching more attractive to top-third

Career features tested in conjoint analysis

Working environment—A blend of adequate resources from books to bathrooms, a safe neighborhood, and orderly hallways.

School leadership—With the best option being principals who are genuine instructional leaders, not mere administrators

Professional development—With the best option being classroom-based, customized training, rather than generic sessions conducted out of school and disconnected from teachers’ classrooms

National marketing campaign —Marketing that informs students about working conditions, what teaching pays, and its importance to the nation

Paid training —A residency-style model where the government covers full tuition for two years of high-quality education training, including one year of classroom-based training alongside a mentor teacher for which trainees receive a full salary

Performance bonuses—Performance bonuses of 20% to the top 10% of performers

Base starting salary—Options ranging from today’s national average of \$39,000 to a high of \$65,000

Maximum salary—Options ranging from today’s average of \$67,000 to \$150,000

Steepness of salary trajectory—A range of trajectories represented by “year 7 compensation” between 25 and 70% of the distance between starting and maximum salary

21 For more on conjoint research, see the appendix at sso.mckinsey.com. Note that there may be limits to what we can infer about retention from the conjoint research on student responses, because teaching packages were tested with students who had not yet been in the classroom. However, implicit in the higher range of maximum salaries tested was the notion that, in choosing that package, one would need to persist over some years to earn it, so directional conclusions about retention can be fairly drawn. In addition, conjoint research on current teacher responses offers supplemental insight on retention.

students.²¹ Such insight should not be confused with recommendations, and more research would be needed to design attractive, cost-effective “packages” to bring top-third students into teaching.

What did this research show? We'll begin with observations on the relative power of the individual levers.

Individual lever findings (summarized in exhibit 10)

Working environment and school leadership.

Improving the working environment or quality of the leadership of schools had little impact on the number of top-third students who chose to enter teaching in this market research exercise. This is likely because students can't appreciate the real-world value of these levers until after they have entered the classroom, and therefore undervalue them. We do know that these levers are important to current teachers, and therefore need to be part of an integrated talent strategy. In particular, applying these levers to current teachers leads more of them to teach in high-needs schools, as working environment and school leadership are among the barriers to teachers joining and staying in high needs schools today.

Professional development. Improving professional development had a negligible impact on the number of top-third students entering teaching. As we saw in their perceptions of teaching, professional development is important to top-third students, particularly in helping them to be effective in their current role and in serving as a steppingstone to other potential careers. However, the conjoint tested the value students placed on the professional development programs themselves. As with working environment and school leadership, students likely undervalued professional development, as they do not understand what effective (or ineffective) programs entail until they enter teaching.

Marketing campaign. A marketing campaign that informed students what teaching actually pays would induce a 7% increase in the number of top-third students entering teaching each year (or an equivalent nationally of 4,000 additional top third students above an estimated baseline of roughly 55,000 who enter today). A broader marketing campaign after any reforms were enacted to enhance teaching's appeal would be a natural part of making students aware of the improved value proposition of a teaching career.²²

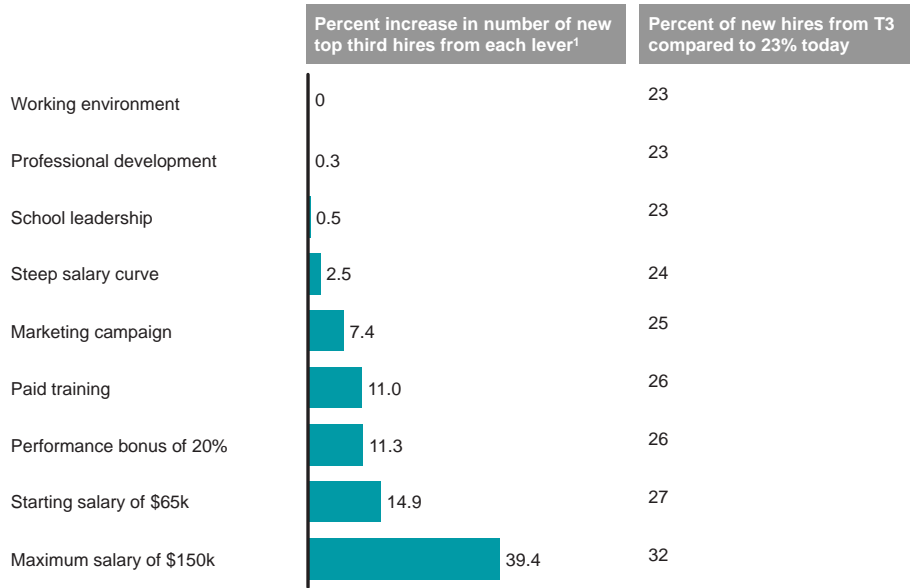
Paid training. Paying for teacher training programs akin to a residency model appears to be effective in attracting some top-third students to teaching. By eliminating this financial barrier to teaching, this market research suggests that we could increase the number of top-third students entering teaching each year by 11%.

Performance bonus. We found that offering a 20% performance bonus to the top performing 10% of teachers would induce roughly an 11% increase in the number of top-third students becoming teachers. Our research did not test higher bonus percentages, nor higher likelihood of receiving bonuses, which would likely have attracted even more top-third teachers. It suggests that well-designed performance pay might have a large impact.

Compensation—starting, maximum, and steepness of trajectory. While few students surveyed cited money explicitly as the top feature of a career, the biggest gaps between teaching and chosen professions were around compensation. Conjoint analysis showed that when making actual choices about teaching, money was the most powerful lever in attracting and retaining top-third students. While students were only somewhat sensitive to the steepness of the salary trajectory (increasing salary trajectory as measured by teachers' salaries in their seventh year would increase the number of top-third students going into teaching by only 2%), increasing

22 While prestige cannot be manufactured through marketing, and the teaching profession would require tangible enhancements to grow its status, marketing can help. A well-crafted marketing campaign can make impressive strides quickly. The United Kingdom's successful “Teach First” campaign, for example, launched in 2002, lifted college students' perceptions of the career so greatly that by 2005 graduating seniors for the first time rated teaching as their top career choice -- and this campaign coupled with other reforms caused 54% more incoming teachers to come from top colleges than was the case just eight years earlier.

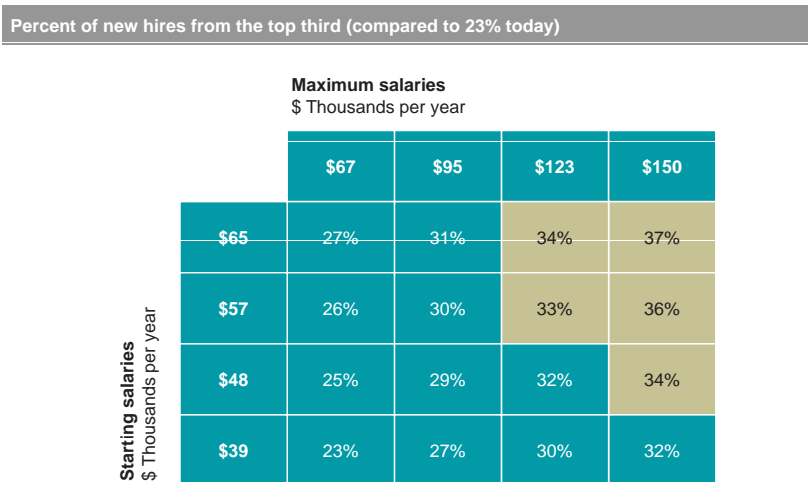
Exhibit 10: Impact of each of the levers tested on top third college students



¹ Applying none of these levers, 55,060 top third students would enter teaching annually across the nation

SOURCE: Market research; McKinsey analysis

Exhibit 11: Impact of various combinations of starting and maximum salaries on top third college students



Note: This includes the impact of only these two compensations levers, and does not include any other levers

SOURCE: Market research; McKinsey analysis

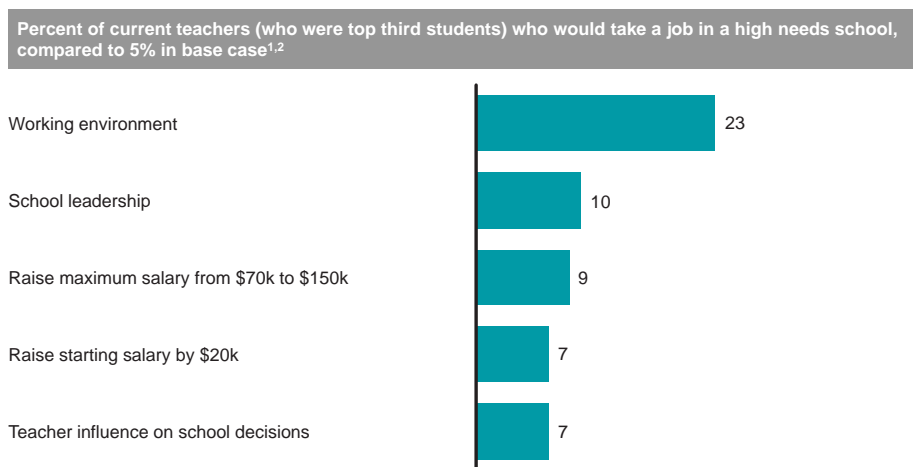
starting and maximum salaries were the most potent levers. Offering starting compensation of \$65,000 would induce a 15% increase in the number of top-third students entering teaching. Offering maximum compensation of \$150,000 would attract a 39% increase in the number of top third students becoming teachers, singlehandedly raising the percentage of new teacher hires drawn from the top third to 32% from 23% today. Exhibit 11 shows permutations of starting and maximum salaries, and their impact. Raising starting salaries to \$65,000 and maximum salaries to \$150,000 together could increase the number of top-third students entering teaching so that they would comprise 37% of all new teachers.

Key finding: Better working conditions and school leadership will do more for retention of current teachers than competitive pay, particularly in high needs schools

We did not ask current teachers to compare teaching with alternative professions, but focused the choice exercise on what would motivate them to move into

a high-poverty school, from which we can infer the aspects of teaching they care about most. As shown in exhibit 12, our findings confirm the importance of certain non-salary levers for teacher retention. Current teachers who were top-third graduates (and who thus chose the profession given its existing parameters) valued excellent school leadership slightly more than a doubling of maximum compensation, and two and a half times as many of them would teach in a high needs school with a good working environment than would do so for double the salary. An improvement in working environment in high-needs schools had by far the biggest impact on current teachers' decisions, with almost a quarter of all teachers surveyed becoming interested. Another non-salary lever, teachers having influence on school decisions, tied a current salary increase of \$20,000. In other words, while there are limits to how well non-salary efforts can induce top-third students to enter teaching, our research suggests that serious ongoing efforts to improve school leadership and working conditions will be essential to attract and retain many more top-third graduates in high-needs districts.

Exhibit 12: Impact of levers in inducing current “top third” teachers to switch to high needs schools



1 Basic job presented as a high needs school where they would make the same salary, have the same tenure options & benefits, with poor working conditions, basic administrative leadership, and limited teacher influence; only 5% of teachers opted to take this job, even though 44% classified themselves as working in a high needs school today

2 Serves as a proxy for what current teachers value

SOURCE: Market research; McKinsey analysis

Scenario findings

In addition to offering insights on the relative power of individual levers, our research allows us to model the impact of “scenarios,” in which we ask what would happen if we changed a number of levers together. This lets us estimate the impact of potential top-third policy initiatives. What follows are several illustrative scenarios. *Please note that these scenarios are not recommendations; rather, they illustrate a range of options for recruiting and retaining top-third students that could inform public discussion.*

As a frame of reference, the baseline teaching situation from which these scenarios depart is: an average starting salary of \$39,000 and maximum of \$67,000; no performance bonuses; no paid training; and working conditions, professional development opportunities, and quality of school leadership as they are, on average, in schools today.

What do the scenarios show?

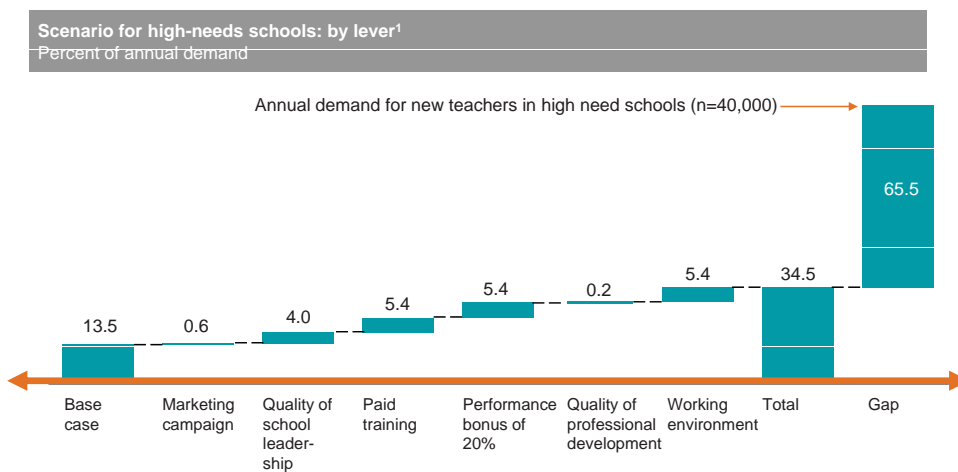
Key finding: The U.S. could more than double the portion of top-third+ new hires in high-needs districts from 14% to 34% without raising salaries.

In exhibit 13, non-salary changes are targeted at the neediest sixth of school districts: the government pays for teacher training rather than the trainee; schools offer excellent leadership and professional development; shabby and often unsafe working conditions are improved; high-performing teachers get performance bonuses of 20%; and an effective marketing campaign promoting teaching rolls out.

In this scenario, 34% of new teachers each year in high-needs districts would be drawn from the top third, up from 14% today. (To give a sense of the magnitude, this would be comparable to tripling the reach of Teach for America without raising salaries, with these new teachers entering the career with an intent to stay for the long term.)

While non-compensation levers can plainly have impact, they would still leave high-needs schools in

Exhibit 13: Impact of applying non-salary levers at maximum to attract top third students to teach in high-needs schools



1 Analysis assumes attraction to high need schools of both top third students as well as current teachers who were top third students
NOTE: Levers ordered according to cost effectiveness

SOURCE: Market research; NCES; OECD; McKinsey analysis

the U.S. with just one in three new hires coming from the top third, as compared to 100% in Singapore, Finland and South Korea. Our research suggests that achieving additional gains would require higher compensation in some form.

Key finding: Substantial compensation increases, combined with non-salary factors, would make it possible to increase the portion of top-third+ new hires in high-needs districts from 14% today to 68%, and achieve similar boosts for STEM teachers.

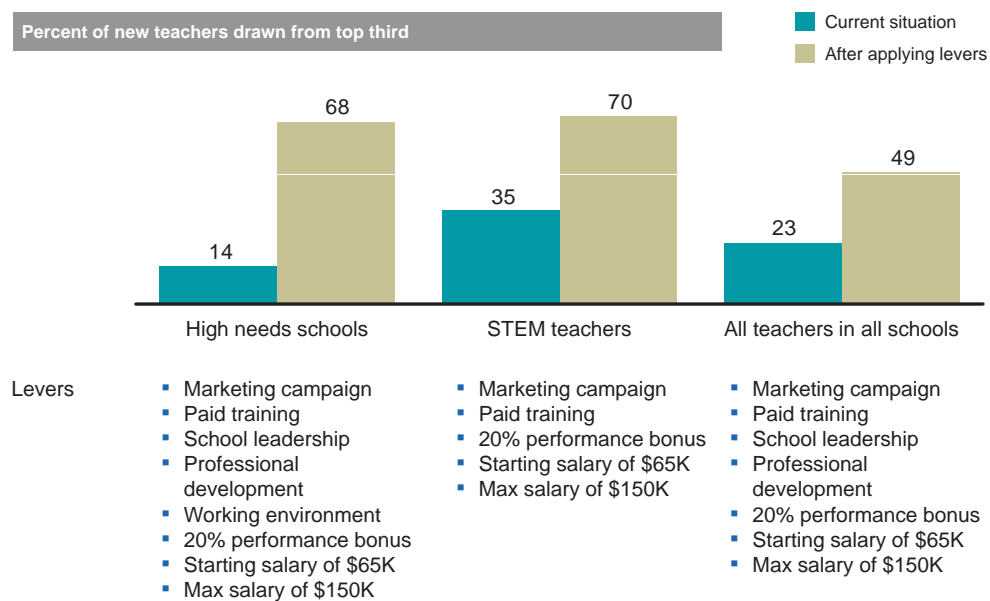
For example, our market research implies that moving to a starting salary of \$65,000 and maximum salary of \$150,000, in addition to the levers discussed above in high-needs schools, could more than quadruple the percentage of new teachers each year drawn from the top third, from 14% today to 68% (see exhibit 14). These levers deployed together in high-needs districts would be more powerful than when used alone more broadly across the country because improving the working environment in high-

needs schools improves their attractiveness in ways it doesn't for all schools, and because applying these changes in high-needs schools would attract both top-third students and current teachers who would be drawn from low-needs schools.

Another scenario would target top-third STEM college students, who tend to care more about compensation than do others. Our market research suggests that while non-financial levers do little to increase the number of STEM students who would choose teaching, compensation increases and related support to STEM graduates—in which they start at \$65,000, top out at \$150,000 and have access to performance bonuses and government-funded training—would result in 70% of hard-to-recruit STEM positions within a district or a state being filled with top-third students, up from 35% today.

What about applying these changes more broadly? If these maximum compensation and non-compensation levers were pursued in all schools and

Exhibit 14: Impact of various scenarios applied to different parts of the system



SOURCE: Market research; NCES; OECD; McKinsey analysis

subjects our market research shows the number of top-third students entering teaching each year would double, and 49% of the demand for new teachers would be met by top-third students, up from 23% today.

These scenarios suggest that it is possible to make teaching attractive enough to draw many more top-third graduates into the profession, and to high-needs schools in particular. Now we turn our attention to the practical challenges of implementing strategies to accomplish such changes, beginning with costs and cost effectiveness.

Thinking about managing costs and cost-effectiveness

The experience of top-performing countries suggests that a “top-third+” strategy merits exploration, and our market research illustrates what might be required to attract more U.S. top-third college students to a career in teaching. However, it has not yet been demonstrated that a U.S. “top-third+” strategy will result in meaningfully higher student achievement. In light of this analysis, it arguably makes sense to test such strategies at the level of individual school districts or state systems to prove their efficacy.

What would it cost? As a first step toward informing such considerations, and to illustrate the potential cost of experimenting with a top talent strategy on the scale of an urban or state education system, we estimated the costs of the various levers. Some, like the impact of compensation changes, are relatively straightforward to assess, although many different permutations are imaginable. Others are challenging to quantify, such as improvements in working conditions and teachers’ feelings about their ability to make a difference. While the assumptions required in such an exercise are necessarily imperfect, we believe they offer strong directional guidance.²³

There are two promising avenues to explore to test this strategy in a district or a state, with implications for scaling nationally: (1) target the levers to a subset of teachers, such as those in high-needs schools, STEM teachers, the most effective teachers, or those who “opt in” for higher compensation and perhaps become subject to more rigorous performance reviews; or (2) consider how expensive reforms could be funded by adjusting the student/teacher ratio or

reallocating less effective K-12 spending to fund top third initiatives. Let’s take these in turn.

Note: In the scenarios that follow, in order to model the potential cost of piloting in a district or a state, we use an illustrative “large” district of 50,000 to 150,000 students, half of whose schools we assume to be high poverty, and an “average” state (i.e., a state with exactly 1/50th of the U.S. teacher population).

Target high-needs schools or STEM teachers

Focusing on the neediest schools or shortage specialties is one potential way to manage the cost of implementing top-third initiatives (exhibit 15). Consider the following scenarios:

Turnaround schools. Improve major non-salary levers (paid training, improved school leadership, professional development, and working conditions, plus performance bonuses and a marketing campaign) in the lowest performing five percent of schools, which serve roughly 2.5 million children nationally. In this scenario, 33% of new teachers would be drawn from the top third, up from 14% today, at a cost in a large district of \$1–3 million per year, and in an average state at a cost of \$20 million per year (this amounts to two-tenths of 1 percent of current K-12 spending). Boosting the starting and maximum compensation would increase the portion of top-third teachers to 64% and cost around \$10–29 million annually in a large district or just under \$200 million in an average state (or roughly 1.6% of current K-12 spending).

²³ Details of our assumptions can be found in the appendix at [sso.mckinsey.com](https://www.mckinsey.com).

Exhibit 15: Impact and cost of various scenarios (applying different levers to different parts of the system)

Scenario	Impact Percent		Annual cost \$ Millions	
	% current teachers from T3	% of total teachers from T3	At current teacher student ratio of 1:15	
			District ³	State ⁴
Non-salary levers for “turnaround schools”¹ (marketing campaign, paid training, school leadership, professional development, working environment, and 20% performance bonus)	14	33	1-3	20
Salary and non-salary levers for “turnaround schools” (same levers as above, plus starting salary of \$65K and maximum salary of \$150K)	14	64	10-29	190
Non-salary levers for high needs schools² (same levers as above, applied to high needs schools)	14	34	10-30	66
Salary and non-salary levers for high needs schools (same levers as above, plus starting salary of \$65K and maximum salary of \$150K)	14	68	95-285	634
Financial levers targeted at STEM teachers across system (starting salary at \$65K, maximum salary of \$150K, 20% performance bonus, marketing campaign and paid training)	35	70	34-101	674

1 Assumes 1 in 20 schools are turnaround schools

2 Assumes 1 in 6 schools are high needs schools in a state; assumes 50% of schools in a district are high needs

3 Assumes district of 50,000-150,000 students

4 Assumes state of average size representing 1/50th of US student population

SOURCE: Market research; NCES; OECD; McKinsey analysis

High-needs schools. If the non-salary levers were targeted to the highest-needs schools, 34% of their new teachers would be drawn from the top third, at a cost of roughly \$10–30 million per year for a large district and \$66 million a year for an average state (roughly one half of one percent of current K-12 spending). Increasing starting and maximum compensation as well would raise the proportion to 68% and cost roughly \$95–285 million for a large district and roughly \$630 million for an average state (or roughly 5% of current K-12 spending).

STEM. The maximum salary and non-salary STEM scenario, which lifts to 70% from 35% the portion of STEM positions that are filled with top-third students, would cost roughly \$34–101 million for a large district and \$674 million for an average state (around 6% of K-12 spending). Focusing on a single state, targeting STEM teachers in high needs schools would cost roughly \$110 million; for STEM teachers in turnaround schools, \$34 million.

Target salary increases to new teachers, or the most effective, or those who “opt in” to higher salaries in exchange for participating in more rigorous performance reviews

One striking result of this market research is that top-third college students not currently going into teaching are much more sensitive to compensation than are current teachers with “top third” academic backgrounds. This is not surprising—to date, teaching has tended to attract top third “altruists”—but it suggests that across-the-board salary increases for all teachers would not be the most cost-effective way to increase the profession’s attractiveness to newcomers. Increasing compensation only for new teachers and those existing teachers deemed most effective would be less expensive, although it presents practical challenges and would require thoughtful solutions. For example, teachers already in the classroom might be allowed to opt into a program where they would be evaluated more rigorously in exchange for the chance to earn substantially more.

For example, consider a high-needs district with 50,000 students. Under traditional pay practices, it would cost roughly \$95 million to get the dramatic impact our research shows is possible, in which 68% of new hires would be drawn from the top third. But on the two-track approach, if half of the existing teacher corps opted in to the new regime while half stayed at the old pay scale, the cost would drop to \$50 million. Such a blend of “grandfathering” and voluntary opt-in is being pioneered under the teacher’s contract recently agreed to by the District of Columbia Public Schools and the American Federation of Teachers and its local affiliate.

An alternative approach might be to increase compensation based on demonstrated gains in student achievement and other measures of teaching effectiveness agreed by teachers to be fair performance indicators. As district data systems improve, and if administrators and teachers can develop evaluation systems that are fair and reliable, differential rewards based on improved measures of teacher effectiveness could become a more cost-effective way to reward and retain great teachers of every stripe, making it possible for “top-third” college students to regard successful teaching as a well-compensated profession.²⁴

Student/teacher ratio

Changing student/teacher ratios might be another way to shrink the cost of top-third initiatives. The U.S. has a small student/teacher ratio (see exhibit 16) compared to two of the top-performing nations, and a smaller portion of top third students entering teaching. One can imagine a cost-neutral scenario with a higher portion of top-third students and a larger student/teacher ratio, and options in between. While these scenarios do not come up in public discussion today, the superior outcomes some other nations

achieve suggest that it may be worth evaluating these tradeoffs more explicitly.

Today’s current class size in the U.S. is about 24 students, while the system has an overall ratio of one teacher per 15 students.²⁵ We looked at the impact of adjusting these ratios to other benchmarks on a per-district and per-state basis, as shown in exhibit 17.

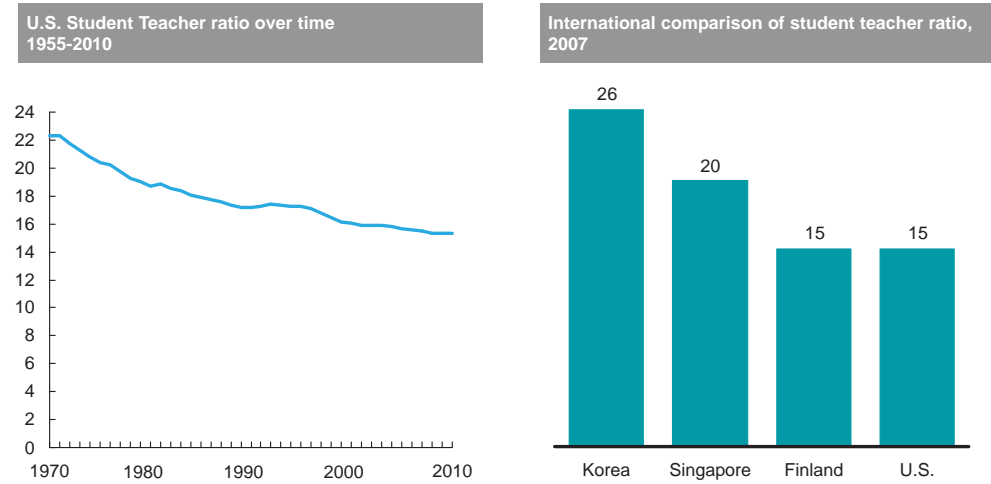
- *“Turnaround” schools.* At current class sizes, the compensation + non-compensation scenario discussed above would cost \$10–29 million per year per large district, and \$190 million per year per state. For the district, at the 1988 U.S. ratios, it would cost about \$7–21 million annually; at South Korean ratios, it would cost \$1 million. For the state, the cost at 1988 U.S. ratios would be \$138 million, and \$8 million at South Korean ratios.
- *High needs schools.* At current class sizes and student/teacher ratios, the salary + non-salary scenario discussed above would cost roughly \$95–285 million per year in a large district (assuming half of the schools are high needs), and \$634 million per year for an average state. At the 1988 U.S. ratios, it would cost \$70–207 million in a large district and \$460 million for a state; at South Korean ratios, it would cost \$4–12 million in a district and \$26 million in a state.
- *STEM initiative.* Within either a large district or a state, this scenario discussed above that would cost around \$34–101 million per year per district or \$674 million per year per state, would more than pay for itself at the 1988 U.S. student/teacher ratios.

To be sure, any discussion of class sizes and overall student/teacher ratios as a way to help finance a top third talent strategy would need to be sensitive and nuanced: no one class size fits all. Research

²⁴ The Teaching Commission, chaired by Lou Gerstner in 2003, sought to “raise student performance by transforming the way in which America’s public school teachers are recruited and retained.” Among its many findings, in its report “Teaching at Risk: A Call to Action,” the Commission recommended a new “compact” where base salaries rise but teachers are measured and compensated additionally based on student performance. The report discusses many ways to maximize teacher effectiveness.

²⁵ Class size is the average number of students in a classroom. In the U.S., the student/teacher ratio also reflects non-classroom, full-time specialist teachers. In contrast, the OECD teaching staff to student ratios include teachers and teaching aides. On this measure, the U.S. ranks among the lowest in the OECD, at 15 vs. an average of 16. The U.S. class size of 24 is comparable to the OECD average. (OECD Education at a Glance 2009, US National Center for Education Statistics).

Exhibit 16: US student to teacher ratio, across time and compared to other countries



SOURCE: OECD Education at a Glance 2009: Table D2.2; Singapore Ministry of Education; NCES

Exhibit 17: Cost of various scenarios at different teacher student ratios

Scenario	Annual cost \$ Millions					
	At current teacher student ratio of 1:15 ¹		At 1988 teacher student ratio of 1:17 ²		At South Korean teacher student ratio of 1:25 ³	
	District ⁴	State ⁵	District	State	District	State
Non-salary levers for "turnaround schools" (marketing campaign, paid training, school leadership, professional development, working environment, and 20% performance bonus)	1-3	20	(1)-(2)	(14)	(5)-(15)	(98)
Salary and non-salary levers for "turnaround schools" (same levers as above, plus starting salary of \$65K and maximum salary of \$150K)	10-29	190	7-21	138	0-1	8
Non-salary levers for high needs schools (same levers as above, applied to high needs schools)	10-30	66	(7)-(21)	(46)	(49)-(146)	(324)
Salary and non-salary levers for high needs schools (same levers as above, plus starting salary of \$65K and maximum salary of \$150K)	95-285	634	70-207	460	4-12	26
Financial levers targeted at STEM teachers across system (starting salary at \$65K, maximum salary of \$150K, 20% performance bonus, marketing campaign and paid training)	34-101	674	(2)-(5)	(36)	(89)-(267)	(1,780)

1 Class size at 24

2 Class size at 26

3 Class size is 33

4 Assumes district of 50,000-150,000 students; in high-needs scenario, assumes 50% of schools in district are high-needs

5 Assumes state of average size representing 1/50th of US student population

SOURCE: Market research; NCES; OECD; McKinsey analysis

suggests, for example, that poor children who enter school behind their more affluent counterparts benefit from smaller class sizes that help them catch up.²⁶ An American commitment to inclusion and tailored attention to special needs children helps drive some of the lower ratios we observe. Meanwhile, some teaching tasks—such as teaching reading and English as a second language—require more personal attention. But some tasks might lend themselves to much larger student/teacher ratios. Technology could permit hundreds or even thousands of students to benefit from a top high school teacher’s American history or economics course, for example.

Some high-performing charter schools appear to be considering such tradeoffs. The average class size is 16 at KIPP, for example, but it ranges up to 30 based on the subject. The Equity Charter School in New York City opened in 2009 offering a base salary of \$125,000 for all teachers and a bonus of up to \$25,000 to start. It received 600 applications for eight slots and operates with a class size of 30 rather than New York’s average of 24 in fifth grade. Rocketship Schools in San Jose are piloting a model under which students spend 100 minutes a day in a “learning lab” engaged in individual, computer-assisted work under the supervision of a paraprofessional; the savings are invested in principal training and higher pay for teachers. Rocketship’s early results are encouraging.

Given the cost of top-third recruitment options, and the role of student/teacher ratios in driving these costs, any top-third strategy should include a thoughtful examination of alternative teaching models and student/teacher ratios.

Reallocate system resources: Less effective spending

Another way to fund top third talent initiatives might be to reallocate money from less effective K-12 spending. While a full analysis of such options is beyond the scope of this report,²⁷ several areas uncovered during our research deserve mention and further study.

For starters, non-educator expenditures appear higher in the U.S. than in the OECD, even after subtracting compensation for school leadership and administration (see exhibit 18). Bringing such spending down to the OECD average could release over \$50 billion annually for educator talent.²⁸ This outlier expense category deserves closer scrutiny.

In addition, most districts raise the pay of teachers with master’s degrees. While in Finland a rigorous master’s is part of a proven and highly selective pre-service training, in the U.S. context it’s more often the route to a pay increase once on the job, often via programs of questionable value. A 2007 study by Marguerite Roza found that U.S. school districts spend \$8 billion annually on higher pay for teachers with master’s degrees with virtually no impact on student achievement.²⁹ \$8 billion a year would be enough fund major top-third talent initiatives, including compensation increases, across all states.

Pension redesign appears to be another area of opportunity. Several officials suggested that teacher compensation today creates perverse incentives for mediocre teachers to “hang on” to receive generous pensions. Finding a way to shift from a “backloaded” compensation strategy might free resources to help attract new top-third graduates.

A final word on cost effectiveness: the cost of some top-third recruitment scenarios may seem prohibitive, but the analysis is incomplete without an understanding of the returns on such investments. Research in 2009 by McKinsey on the costs of the

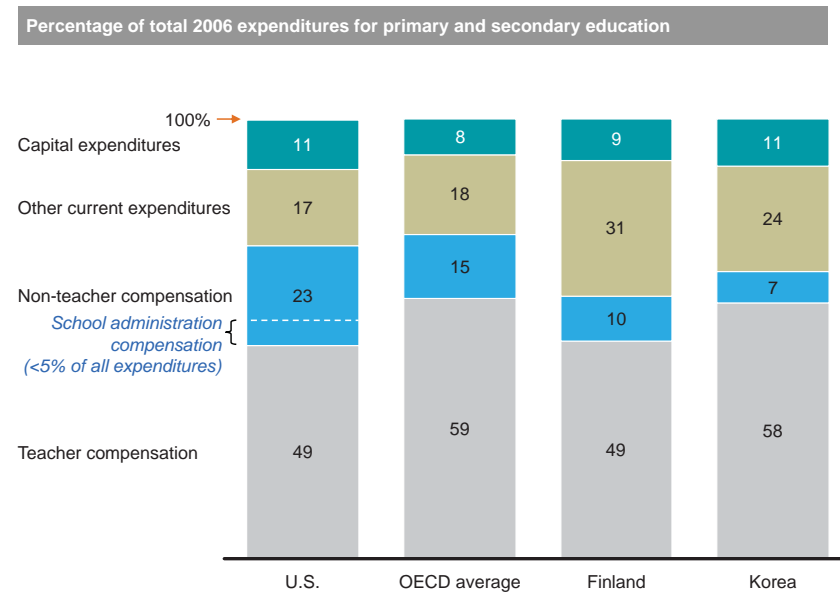
26 “Project STAR: The Tennessee Student/Teacher Achievement Ratio Study.” HEROS, Inc. September 2007.

27 Identifying funding options from other areas of public spending are also beyond the scope of this report but many programs are slated for enormous increases. Over the next five years, for example, spending on Social Security, Medicare and Medicaid alone are projected to rise by more than \$90 billion annually.

28 “OECD Education at a Glance” 2009, Table B6.2b, NCES Projections of Education Statistics. Savings derived by applying 10% difference in US and OECD non-teacher salary to current educational spend in the U.S.

29 Roza, Marguerite, *Frozen Assets: Rethinking Labor Contracts Could Free Billions for School Reform*, Education Sector Report, January 2007.

Exhibit 18: Comparison of US teacher compensation expenditures with other nations



SOURCE: OECD Education at a Glance 2009, Table B6.2b; NCES 2006-7

achievement gap in America's schools suggests that the stakes are high. For low-income and minority students, we estimated that, in terms of lost GDP, the recurring annual costs of the achievement gap range from \$310 billion to \$670 billion.³⁰ If a top third+ strategy could help close this gap in high-needs schools over a decade at a cost of, say, \$30 billion to \$40 billion a year, the economic and social returns could be enormous.

30 "The Economic Cost of the Achievement Gap in America's Schools," McKinsey & Company, 2009; E. Hanushek, et al., "Education and Economic Growth," *Education Next* (Spring 2008), 65.

Scaling a top-talent approach

Should smaller-scale efforts prove effective with pioneering school districts and states, what would it take to mount a national top-talent strategy? Hypothetically, applying non-salary levers in the one in six highest-needs schools in the nation, to more than double the percentage of students drawn from the top third from 14% to 34%, would cost \$3.3 billion annually. Focusing on every turnaround school in the U.S., using the same strategy, with a similar increase in top-third entrants, would cost the nation \$1 billion.

Applying the maximum “salary + non-salary levers” to the one in six highest-needs schools serving 8 million children, to lift the portion of top-third students entering as teachers from 14% to 68%, would cost \$32 billion annually. Pursuing this approach for the 2.5 million students in “turnaround” schools would cost \$9.5 billion.

Finally, consider a hypothetical maximum “salary + non-salary levers” scenario applied to all schools in

all states, which our research suggests would lift the number of new teachers drawn from the top third to 49% from 23% today. At current class sizes and student/teacher ratios, this scenario would cost roughly \$180 billion per year—30% of the roughly \$600 billion spent annually in the U.S. on public education today.³¹ This high cost assumes that the new salary scale must apply to all teachers, even though we would be aiming to affect the choices of only young students at the dawn of their working lives. An “opt-in” strategy on the compensation components for existing teachers might lower costs of this approach by roughly half. Our research doesn’t begin to show that a broad effort like this (which would in essence “overpay” for 3.5 million current teachers who made their career choice without such higher salary ranges) would be cost-effective, but it does point to a need to evaluate and test different trade-offs around teacher compensation levels and structure, and other major drivers of education spending.³²

31 We have excluded the impact of a “steep salary curve” from the scenarios, as it turned out to be a less effective lever.

32 It may be useful to place these findings in an international perspective. As data in the appendix to this report shows, compared to their OECD counterparts, American teachers are poorly paid. The U.S. invests around the same in K-12 education as a share of GDP as the OECD average (4.0% compared to OECD average of 3.7%), but U.S. teacher salaries as a share of GDP per capita rank 20 (out of 29 OECD nations) in relative starting salaries, and 23rd on relative salaries for teachers with 15 years of experience. This suggests that if there were ways to reallocate resources toward teaching within America’s overall education investment, increases of the magnitude that would attract more top third graduates to all school districts might appear more feasible. This observation would still not address the issue of any new initiative “overpaying” for current teachers who did not require higher pay scales to be drawn to teaching.

Where we might go from here: Two recommendations

The success of top-performing nations, and the possibility that the U.S. could draw many more top-third students to teaching, make a compelling case for exploring a top third+ approach in the context of whole system reform. Given its costs and uncertainties, we should look for sensible ways to start and learn more. We recommend two top-third initiatives to deepen the current “teacher effectiveness” agenda:

Pilot a top third+ talent strategy. America’s uniquely decentralized school system is sometimes seen as a challenge, but when it comes to experimenting with new ideas, it’s an asset. We suggest that federal or philanthropic funds support integrated school district and state-level strategies to attract and retain top-third+ talent to the classroom for at least a decade, as part of comprehensive human capital strategies. Competitive applications (part of a “Race to the Top Third,” so to speak) would include a rigorous research and evaluation component, so that the nation could learn if a top third+ strategy could help to boost student achievement towards parity with the world’s top-performing school systems.

While detailed guidelines for such an initiative are beyond the scope of this report, the research suggests focusing on high-needs districts, because of the wide achievement gap, and because their high levels of current teacher turnover means a top third strategy could fundamentally change the composition of their teacher corps over five to seven years. An “opt-in” component for higher pay and more rigorous performance evaluation seems especially promising, along with special incentives for math and science graduates. Schools might build partnerships with the universities likely to produce many of the new teachers; and a mix of public and philanthropic dollars

could fund West Point-style teaching (and principal) academies. Investments in continuously improving processes and predictive models to identify more successfully those “plus” factors so that a higher share of incoming teachers are truly effective in the classroom could be supported. Working conditions could be improved, and a grassroots marketing campaign might enhance the cachet of becoming part of a major community initiative.

The resources required would vary depending on the size of the districts and the ability to lower costs (e.g. through “opt-in” strategies). For example, our research suggests that \$250–500 million a year might fund the high-needs scenario discussed in this report for districts serving about 260,000 students—which could mean one district the size of Broward County, Florida; three the size of Long Beach, California; or five the size of Atlanta. Investing roughly \$1.3–2.5 billion a year would benefit districts serving 1.3 million students—the equivalent of six Houstons or Philadelphias. Larger districts might be allowed to create special districts-within-districts to compete for federal funding. Funding could also be conditioned on districts that put “skin in the game” by reallocating funds, which would stretch outside dollars. (Our early estimates don’t include special resources that might be needed for new teaching academies, or other features of broader plans).

However funded, the wager of this experiment would be that a targeted R&D investment of less than one percent of national K-12 spending could prove it is possible to create a revolution in the way the career of teaching is viewed, with associated benefits for student achievement in these districts, and a potential model for the nation.

With much of America's teacher corps turning over in the next decade, the nation should be asking, 'Who should teach?'

Develop a national teaching talent plan. In stark contrast to the three top performing countries whose systems we studied, the U.S. does not have a strategy for the teaching profession. The research suggests that a commission or task force at the Federal level could help to develop a National Teaching Talent Plan that would propose specific next steps and timelines for phasing in changes in how we recruit, prepare, retain, and reward teachers, informed by global

best practice. The commission could include state and federal officials, teachers, business and union leaders, human resource management experts, and other stakeholders. Public hearings could broaden involvement and elevate the issue's prominence. Its report might help shape a new era of policy and practice on teacher recruitment and retention equal to the challenges facing 21st-century schools.

Other implications for education stakeholders

Our research shows that the U.S. can recruit and retain many more top-third+ students to teaching as part of an integrated reform strategy, but not without questioning orthodoxies and reallocating resources to improve every aspect of how teaching careers are designed—or left “undesigned.”

While a full discussion of how to create and execute a top-third+ strategy is beyond the scope of this report, it would likely mean adapting international models to American needs.

Some key elements (and questions) would include:

Teacher education. Singapore, Finland and South Korea control teacher training, select only the best candidates, insist on rigorous training, and assure graduates jobs. The United States is almost the polar opposite. What would an American-style model of selective teacher training look like at scale? Should the U.S. develop national teaching academies? Should charter management organizations or national teacher unions create or help to shape new models? Could states or other entities develop them? What would it take?

Prestige. Careers in teaching are sought-after and highly regarded in top-performing nations. Apart from Teach for America, which this year will recruit 2 percent of the new teachers in the country for two- to three-year assignments, there is no similar cultural sensibility in the U.S. Could marketing change people's attitudes? While our research shows that a campaign about salaries would have a modest impact at low cost, how would the career itself need to change before a marketing campaign could be truly successful? Could creative governors or mayors enhance the status of teaching in their jurisdictions in ways that help spark another “race to the top”? What would such an agenda look like?

School system operations. If states or districts are willing to examine student/teacher ratios to help fund the recruitment and retention of more top-third+ students, how could schools run well with fewer teachers per student? What are the operational implications? What can we learn from abroad? Might this be a job for an enhanced R&D function at the Department of Education? How might an innovative state or district begin testing such ideas now?

Institutional responsibility. It is unclear in America's decentralized system who would lead the development of a top third+ strategy. The United Kingdom has upgraded teaching talent with a new national agency. Could a similar effort be successful in the U.S? Could a top-third plus strategy work in a single state as part of an integrated teacher effectiveness strategy in its Race to the Top plan?

A top third+ strategy for the teaching profession should be part of the debate.

Areas for further research

This work raises questions for further study:

Regional and local labor markets for top-third students. We focused on the nation as a whole, but teachers are hired primarily in local labor markets. Research might examine which elements of teaching's value proposition are most important in particular geographies. For example, the nationwide average compensation we surveyed would almost certainly not be perfect fits for the biggest urban districts or for poorer rural areas, given disparities in the cost of living. States or districts pursuing a top-third strategy might find it useful to develop region specific "demand curves" for local talent.

Economy-wide salary structure. One strong hypothesis emerging from this research is that a higher income potential for top-third students in the U.S. has a large impact on the salaries needed to attract top third students to teaching. A more detailed comparison of U.S. and top-performing nation wage structures could shed light on this issue.

Retention scenarios. Some experts believe that it takes around two to three years for top talent to deliver in the classroom, and that compensation boosts once effectiveness is demonstrated are essential for retention. It would be worth examining options for raising and restructuring compensation between years two and three and, say, five to seven, to retain top students who become top classroom performers. Singapore's differential pay practices and retention bonuses might offer a model, in which a top third+ recruitment strategy and rigorous performance management reinforce one another.

Teacher effectiveness "plateaus." Top-performing nations don't appear to share the view of some U.S. researchers that a teacher's gains in effectiveness stop after three years. Because this judgment can affect many aspects of a national or regional human capital strategy, this question may merit further examination, perhaps in a collaborative effort with top-performing nations.

Conclusion

With more than half of America's teacher corps turning over in the next decade, the nation should be asking, "Who should teach?" Most world-class organizations have a talent strategy: concrete ideas about the human resources they need to succeed, and how to recruit and retain this talent. American education has long followed a more haphazard approach, with its teacher corps the byproduct of broad social and economic trends rather than any conscious design. Recruiting approaches that worked 30 or 40 years

ago won't suffice today. Every country must find its own path and operate in a unique cultural setting. But the extraordinary success of the top-performing nations, who view their teachers as integral to their economic strategies, suggests that the composition of America's teacher corps deserves a national debate. Shifts in America's talent strategy for teaching would take years to fully implement, making it critical to start the conversation now. We hope this research can contribute to the discussion.

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