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Miles to Go Before We Sleep: The Successes of U.S. Education and the Promises Left to Keep

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“The woods are lovely, dark and deep.
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.”

-Robert Frost, “Stopping by Woods on a Snowy Evening”

MILES TO GO BEFORE WE SLEEP

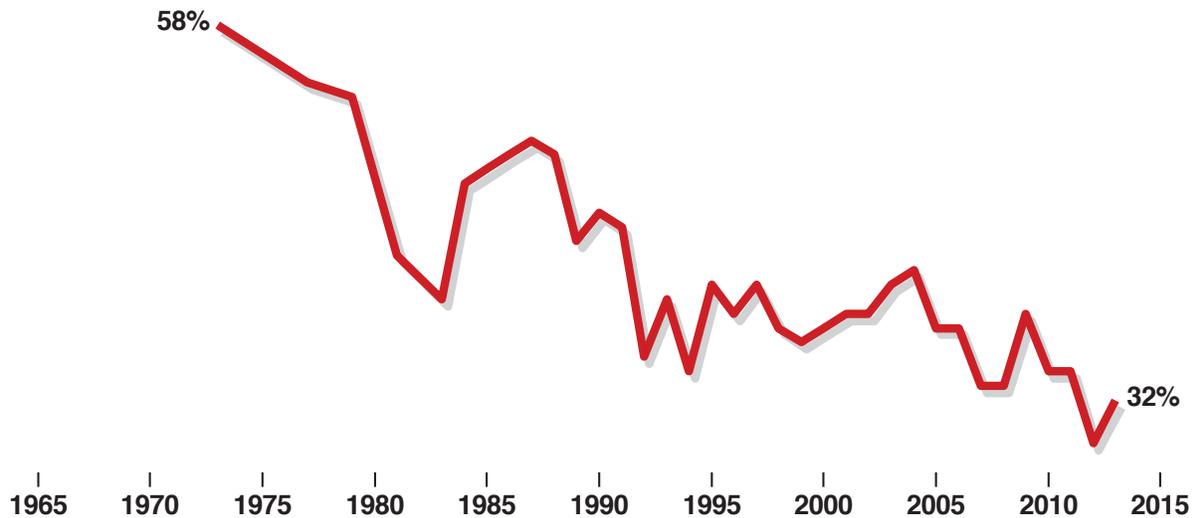
Since 1973, Gallup has conducted an annual public confidence survey in which Americans rate their confidence in sixteen various public institutions. Last year's results generated the headline, "Confidence in U.S. Public Schools at New Low" (Jones, 2012). Puzzled and concerned by this trend, we examined empirical performance measures of U.S. public schools to see if public perceptions were, in fact, tethered to reality. In our paper, 'Restoring Faith in Public Education' (Smith, Turner & Lattanzio, 2012), we plotted National Assessment of Educational Progress (NAEP) Long Term scores in reading and mathematics, Trends in International Math and Science Study (TIMSS) scores, Progress in International Reading Literacy Study (PIRLS) scores, and high school drop-out rates against the plummeting public school confidence trend line. Our analysis indicated that such a dismal perception was not warranted when considered against these empirical benchmarks.

On June 13, 2013, Gallup reported this year's survey results and fortunately, education was not the headline story. The big story generated from this year's survey was that public confidence in Congress had reached an all-time low. Just 10 percent of respondents reported having confidence in Congress (Mendes & Wilke, 2013).

Confidence in public schools, on the other hand, experienced a slight uptick with 32 percent of respondents reporting confidence in public education (Mendes & Wilke, 2013). That's up 3 percentage points over last year's poll results. While that may seem like an encouraging sign, it's worth noting that the poll's margin of error is +/- 3 percent¹. This means, for all intents and purposes, public confidence in education remains essentially unchanged.

¹ Concerning polling results for confidence in various American institutions, Gallup states, "For results based on the total sample of national adults, one can say with 95 percent confidence that the maximum margin of sampling error is ± 3 percentage points." This does not mean that every value as a percent in the poll has a 95 percent confidence of ± 3 percentage points, but rather, that no value in the poll has a 95 percent confidence interval greater than ± 3 percentage points. Given the total sample of 1,529 national adults in 2013, the 32 percent of respondents who said they had a "great deal/quite a lot" of confidence in public schools has a 95 percent confidence interval of ± 2.3 percentage points. Given the total sample of 1,004 national adults in 2012, the 29 percent of respondents who said they had a "great deal/quite a lot" of confidence in public schools has a 95 percent confidence interval of ± 2.8 percentage points. When taken together, there is approximately a 95 percent probability that the true percentage of Americans with a "great deal/quite a lot" of confidence in public schools is higher in 2013 than it was in 2012, which borders on statistical significance. The fact that the probability is 95 percent and the difference in value between the two years is 3 percent is coincidental.

FIGURE 1: Public School Confidence



Public School Confidence: <http://www.gallup.com/poll/163052/americans-confidence-congress-falls-lowest-record.aspx>

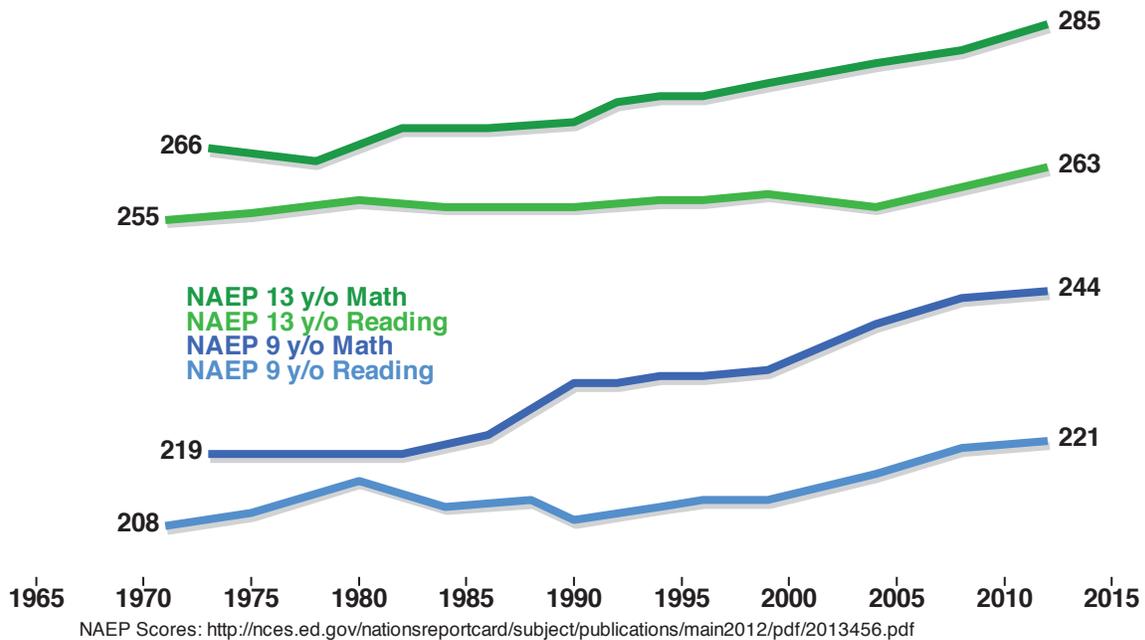
As Figure 1 illustrates, our confidence in public schools has been progressively declining since the 1970s. Other than a few brief rebounding peaks in the mid-80s, the American public has adopted a primarily pessimistic view on the state of education in the U.S. As we argued in last year's paper, this declining confidence in education does not appear to be justified (Smith, Turner & Lattanzio, 2012). In addition to another year of Gallup data, we also have additional data on student performance. In July of 2013, the National Center for Education Statistics (NCES) released NAEP Long Term results for 2012. On the international assessment side, we have 2011 test data for PIRLS and TIMSS. We have also added an additional variable worth considering – trend data on the percentage of free and reduced lunches being served in public schools from 1969 to 2012.

So with another year of Gallup data, another year of NAEP Long Term results, PIRLS data, TIMSS results, drop-out rates, and hard data on the increase of free and reduced lunches being served, is perception tied to reality? The short answer is the same as last year – we think not. After all, U.S. students have continued to demonstrate positive growth in reading and mathematics as measured by the NAEP². As figure 2 illustrates, 9 and 13-year-old

² The average NAEP scores for all students are used instead of the average NAEP scores for just public school students because data on public vs. private or Catholic school data does not extend past 1978 for mathematics or 1980 for reading. The average scores for public schools tell the same story as the NAEP scores that are shown for the available years. Students that take the NAEP are overwhelmingly public school students and over the years the percentage of total students in public schools has actually increased, which should alleviate any concerns of this positive trend being driven by non-public schools.

U.S. students have markedly improved in both reading and mathematics since 1970 (National Center for Education Statistics, 2012). In fact, in reading, the average score of a U.S. 9-year-old student has risen from 208 in 1970 to 221 in 2012. In mathematics, the growth is even more dramatic with the average score of a 9-year-old student rising from 219 in 1970 to 244 in 2012. For thirteen year old students, the trend has been similarly positive. In reading, thirteen year old students have risen from 255 to 263; and in mathematics they have grown from an average of 266 in 1970 to 285 in 2012 (National Center for Education Statistics, 2012). This marked increase in mathematics achievement demonstrates a remarkable growth trend among American students and belies the pessimistic view adopted by the public on the state of public education.

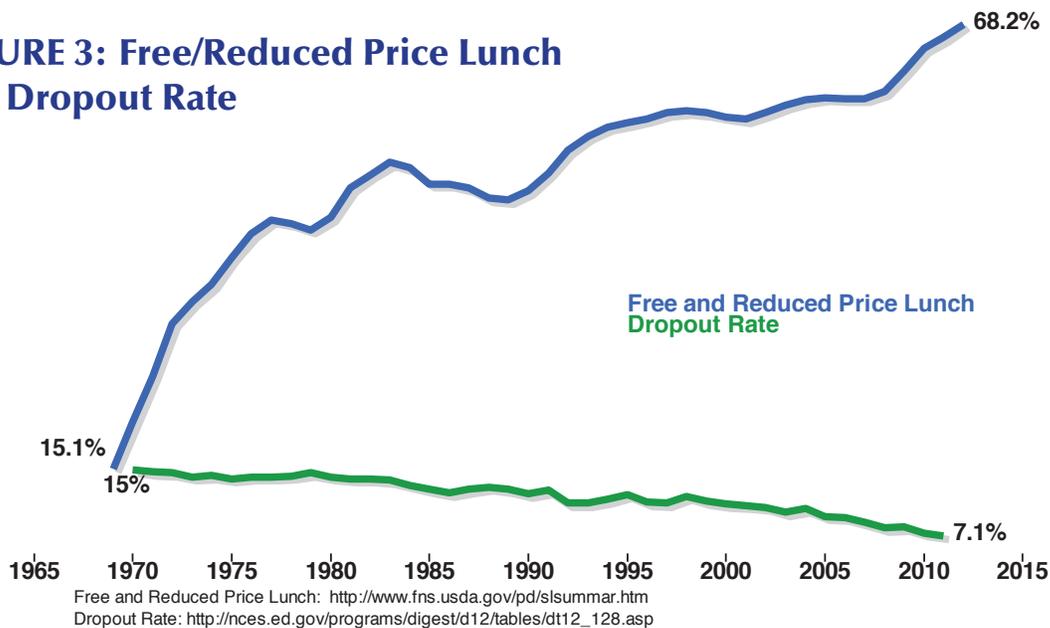
FIGURE 2: NAEP Math and Reading Scores



While it's worth noting that reading and mathematics scores for 17-year-old students have remained virtually unchanged since the early '70s (e.g., 285 in reading in 1973 and 287 in reading in 2012) (National Center for Education Statistics, 2012), some have argued that there's nothing particularly worrisome or illustrative about that trend. Seniors in high school are well aware that the assessment has no effect on their academic ambitions, and it makes little difference whether they do well or poorly. In fact, as Diane Ravitch has written, "The National Assessment Governing Board (NAGB), which oversees NAEP, has known for years that 12th

graders don't try to do well on the tests" (Ravitch, 2010). And we believe that this same concern applies equally to 17-year-old students who participate in the NAEP Long Term study. While the concern about motivation and good faith efforts may cast doubt upon the validity of seventeen year old performance, the fact that the trend has been basically flat is actually remarkable when one considers that 17-year-old students today represent a far more diverse population than in the 1970s.

FIGURE 3: Free/Reduced Price Lunch and Dropout Rate



All of this commendable progress has been made despite the fact that today's educators are working with larger percentages of low-income students and much higher percentages of English Language Learners (ELL). As of 2009, around 10 percent of U.S. students were ELL and 80 percent of this group were native Spanish speakers (Center on Education Policy, 2012). Student populations of low-income students have been rising as well. Figure 3 illustrates that from 1969 through 2012, there has been a steady upward trend in the percentage of students receiving free and reduced lunch³. In 1969, only 15 percent of U.S. students (of those who received school lunches) were free and reduced price recipients. That number, however, has been increasing ever since, and by last year, that number was over 68 percent (USDA: Food and Nutrition Service, 2013).

³ Free and reduced price lunches served as a percentage of total school lunches is used as a proxy for percent of students eligible for free and reduced price lunches because there is data that extends back to 1969, vs. the statistics on percent eligible for free and reduced price lunch which extends only back to 1998 (see <http://nces.ed.gov/ccd/elsi/tableGenerator.aspx>). However, the trend for percent students eligible for free and reduced price lunches between 1998 and 2010 matches almost exactly with the percentage of free and reduced price lunches served. Both increase by 8 percent between 1998 and 2010 and have a correlation of 0.95. Thus, we feel that the metric is justifiable as a proxy for student poverty in public schools.

FIGURE 4: U.S. Student Performance on the PIRLS and TIMSS

	Year	Scale Score	Rank	Percentile
TIMSS (8 th grade)	1995	500	28/41	33%
	1999	502	19/38	51%
	2003	504	15/45	68%
	2007	508	9/48	82%
	2011	509	9/42	80%
PIRLS (4 th grade)	2001	542	9/35	76%
	2006	540	18/45	61%
	2011	556	6/45	88%

TIMSS: <http://nces.ed.gov/timss/>; <http://timss.bc.edu/timss1995i/HiLightB.html> (1995)
 PIRLS: <http://nces.ed.gov/surveys/pirls/index.asp>

In the face of such challenges, the U.S. has continued to make gains. Even more compelling is U.S. student performance when compared to other developed nations, as measured by the PIRLS and TIMSS. As Figure 4 illustrates, the United States has continued to improve in terms of both the average student scale score and the rank of the U.S. relative to other nations⁴. On the TIMSS, student performance has risen from a score of 500 in 1995 to 509 in 2011 (National Center for Education Statistics, 2012). And the increase in rank has been even more dramatic – from 33 percent in 1995 to 80 percent in 2011 (National Center for Education Statistics, 2012). As Reardon, Valentino and Shores have acknowledged regarding student performance on the PIRLS:

“Once again, there is little evidence of an imbalance. In 2006 the United States scored above average in both reading for literary purpose and for informational purpose, ranking twelfth in both categories” (Reardon, Valentino, & Shores, 2012).

⁴ It should be noted that the composition of countries participating in TIMSS and PIRLS changes from year to year and the scale score is relative to the countries participating; thus the scale scores and percentiles need to be viewed cautiously. However, the absolute ranking of the United States among the countries can be viewed more confidently as a metric for U.S. performance as most of the countries that do not participate in all of the years are towards the bottom end of the scale while the top of the scale has more consistent participation.

All of these results point to commendable progress in public education and there is much to laud about the work our educators are doing. Public cynicism and decreasing confidence appear not entirely justified given that the last thirty years have seen improvement in U.S. student performance. Possible reasons for the deepening cynicism of the American public are outside the scope of this paper, though we have argued for several possible explanations in our previous paper, 'Restoring Faith in Public Education' (Smith, Turner, & Lattanzio, 2012).

That the academic performance of U.S. students is generally improving is good news, and it should not be given short shrift, however; there is some cause for concern. Despite these notable and admirable successes, digging a little deeper in the data reveals there is still much work to be done to shore up the dream of educational opportunity for all U.S. students. Two gaps that continue to plague educators – and perhaps contribute to the public's declining confidence in schools – are the achievement gap and the college and career readiness gap. As Eric Robelen argues, though there has been general improvement in U.S. student performance, the academic black-white achievement gap remains an intractable thorn in the side of our educational system (Robelen, 2013). Though the persistent gap has been well documented and the target of a multitude of educational policies, a magic bullet solution has remained elusive, and the gap persists despite our well-intentioned efforts.

As Eric Robelen recently wrote:

A new report from “the nation’s report card: emphasizes progress in closing achievement gaps for black and Hispanic students between the early and mid-1970s and today....

Much of that narrowing of the achievement gap was actually accomplished by the mid to late 1980s, the data indicate. It’s ebbed and flowed a bit since then, but in most cases, the gaps are no smaller today than they were two decades ago. In fact, they’re sometimes larger, though not by amounts deemed statistically significant.

For example, the black-white achievement gap for 13-year-olds in reading reached its narrowest point in 1988, at 18 points, compared with 23 points in 2012.

In math, the black-white achievement gap for 9-year-olds was 25 points in 1986, the exact same figure as for 2012 (Robelen, 2013).

To be fair, there has been *some* progress in ameliorating the black-white achievement gap, particularly when taking a wider historical view and considering the size of the gap in the early 1970s. Comprehensive educational policies – like No Child Left Behind (NCLB) and more recent efforts like Race To The Top – have attempted to explicitly address the gap, and have had some mild successes. As Reardon, Valentino, and Shores have argued, there have been some positive steps in narrowing the gap, however modest:

The gap widened modestly in the early 1990s before beginning to narrow again in the late 1990s; that narrowing continued slowly through 2008. This pattern is evident in Scholastic Achievement Test score trends as well as in other large studies with nationally representative samples of students. The most recent NAEP-LTT data (from 2008) indicate that the black-white gap is now roughly 0.6 of a standard deviation, about half of what it was forty years ago, although almost all of the progress in closing the gap was made in the 1970s and 1980s (Reardon, Valentino & Shores, 2012).

Given that Black and Hispanic students enter high school with literacy skills approximately three years behind their white peers, it's easy to see how such a gap could persist (Reardon, Valentino, & Shores, 2012). And given the size of the gap, only the most intensive remediation efforts are likely to have a significant impact. Recent research, however, indicates that the achievement gap may, in fact, be more a function of income than race or ethnicity. Low-income 8th graders are approximately five years behind their more affluent peers, and there appears to be some evidence that the socioeconomic gap is widening:

ECLS-K data indicate that socioeconomic disparities in reading achievement are much larger than racial or ethnic gaps. ...These socioeconomic achievement gaps appear to have widened substantially in recent decades. ...For children born in the 1950s, the reading gap between students from high- and low-income families was smaller than the black-white gap; the income gap is now much larger than the black-white gap (Reardon, Valentino, & Shores, 2012).

That's not surprising considering the opportunity gap between the socioeconomic levels. Children from high-income families often benefit from a wide array of additional educational efforts, including tutors and supplemental educational tools and resources (Reardon, Valentino, & Shores, 2012). Additionally, high-income families are more apt to spend a greater amount on enrichment activities (e.g., summer camps, travel, language immersion programs, extracurricular academic activities, etc).

In the early 1970s families in the top income quintile invested 4.2 times more a year in child enrichment expenditures than did parents in the lowest income quintile; by 2005 parents in the highest income quintile spent 6.8 times more a year on child enrichment activities than did their counterparts in the lowest income quintile (Reardon, Valentino, & Shores, 2012).

Matthew O'Brien argues similarly that the U.S. is becoming more stratified and that the well-to-do are pouring a tremendous amount of resources into the education and additional enrichment activities of their children (O'Brien, 2013). O'Brien points to a recent study by the Pew Economic Mobility Project that found, strikingly, that high socioeconomic students without a college degree are 2.5 times more likely to end up affluent than low socioeconomic students with a college degree.

It's what outgoing Council of Economic Advisers chief Alan Krueger has dubbed the "Great Gatsby Curve" – the more inequality there is, the less mobility there is. As Tim Noah put it, it's harder to climb our social ladder when the rungs are farther apart (O'Brien, 2013).

According to NCES, almost two-thirds of Black and Latino students attend schools in which more than half of the student population is from low-income families (Center on Education Policy, 2012). In addition, almost 20 percent of U.S. students are from families with incomes below the federal poverty line (Center on Education Policy, 2012). The burgeoning opportunity gap may go a long way in accounting for the persistent achievement gap, an ostensible black-

white gap, but more accurately recognized as the gap between those with abundant resources and those without.

The second gap that has received increasing national attention is our failure to graduate every student prepared for the rigors of college and career. This ‘college and career gap’, and our collective resolve to address it, led to the creation of the Common Core State Standards. With the almost unanimous adoption and implementation of these standards, there has been unparalleled national, regional and local media attention on this historic moment in education. As a small example, Exxon Mobil launched a concerted media campaign entitled ‘Let’s Solve This’, directed at tackling major educational deficiencies (Exxon Mobil, 2013). ‘Let’s Solve This’ uses media such as national TV commercials and social media to highlight, target and address these educational issues.

A consequence of all the media attention on the Common Core State Standards is the highlighting of our failures in public education. Principally, our failures revolve around these two attainment gaps. In none of the media campaigns have the positive results discussed above or our significant progress as a nation been chronicled. Balanced perspective is certainly needed if we are going to simultaneously raise our standards and public confidence.

Balancing the dual priorities of equity and excellence represents a significant challenge. This challenge is best expressed in Secretary of Education Arne Duncan’s assertion that the holy grail of education is to graduate all students from high school and to secondly, ensure that all students graduate college and career ready (Education Week, 2009). Never in the history of education in our country have we graduated 100 percent of our students. While steadily improving our overall graduation rate, our drop-out rate remains stubbornly high; we still lose approximately 1.3 million students per year (Alliance for Excellent Education, 2013). Even worse, the data on the number of high school graduates requiring remedial educational support once they enroll in a community college or university demonstrates a significant gap. According to the Alliance for Excellent Education, 42 percent of freshmen at community colleges – and 20

percent of freshmen at four-year institutions – enroll in at least one remedial course (Alliance for Excellent Education, 2006).

Seen through this lens, the U.S. has a long way to go in terms of public education. The long road ahead, and the notable work that must be done, may justifiably give rise to the skepticism and doubt expressed by the American public in Gallup's recent poll. But when President Kennedy announced in 1961 our intent to put a man on the moon, it likely sounded as far-fetched and unlikely as Secretary Duncan's vision that we graduate every student college and career ready. In the same way that President Kennedy's goal and commitment became a reality in 1969, we believe that Duncan's views can be realized in the years to come.

The distance between the goal of graduating every student college and career ready and the status of today's U.S. student population is obviously significant. A burgeoning ELL student population and a significant number of low-income students mean that many students begin school far behind their more affluent peers. Unfortunately, educational research over the last hundred years has demonstrated that there are no easy solutions and no silver bullets to solve some of education's most intractable problems. Realizing the Holy Grail will require sustained effort, tireless commitment, and dedicated execution – as well as a public committed to facing the myriad – and often uncomfortable – issues that complicate our educational landscape; it will require confidence in our ability to reach our long term goal of achieving educational opportunity for all of our students. As we pointed out in our paper, 'Restoring Faith in Public Education', our challenge will be to educate the public in such a way as to renew their confidence by recognizing the gains we are making and being realistic about the challenges we face (Smith, Turner & Lattanzio, 2012). Have we made significant strides in improving the quality of education for K-12 students? Looking back at the overall data trends, the answer is clearly yes. Looking forward, however, we still have significant steps left in this journey, and remedying the achievement gap and the college and career readiness gap may be our last two mile markers.

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