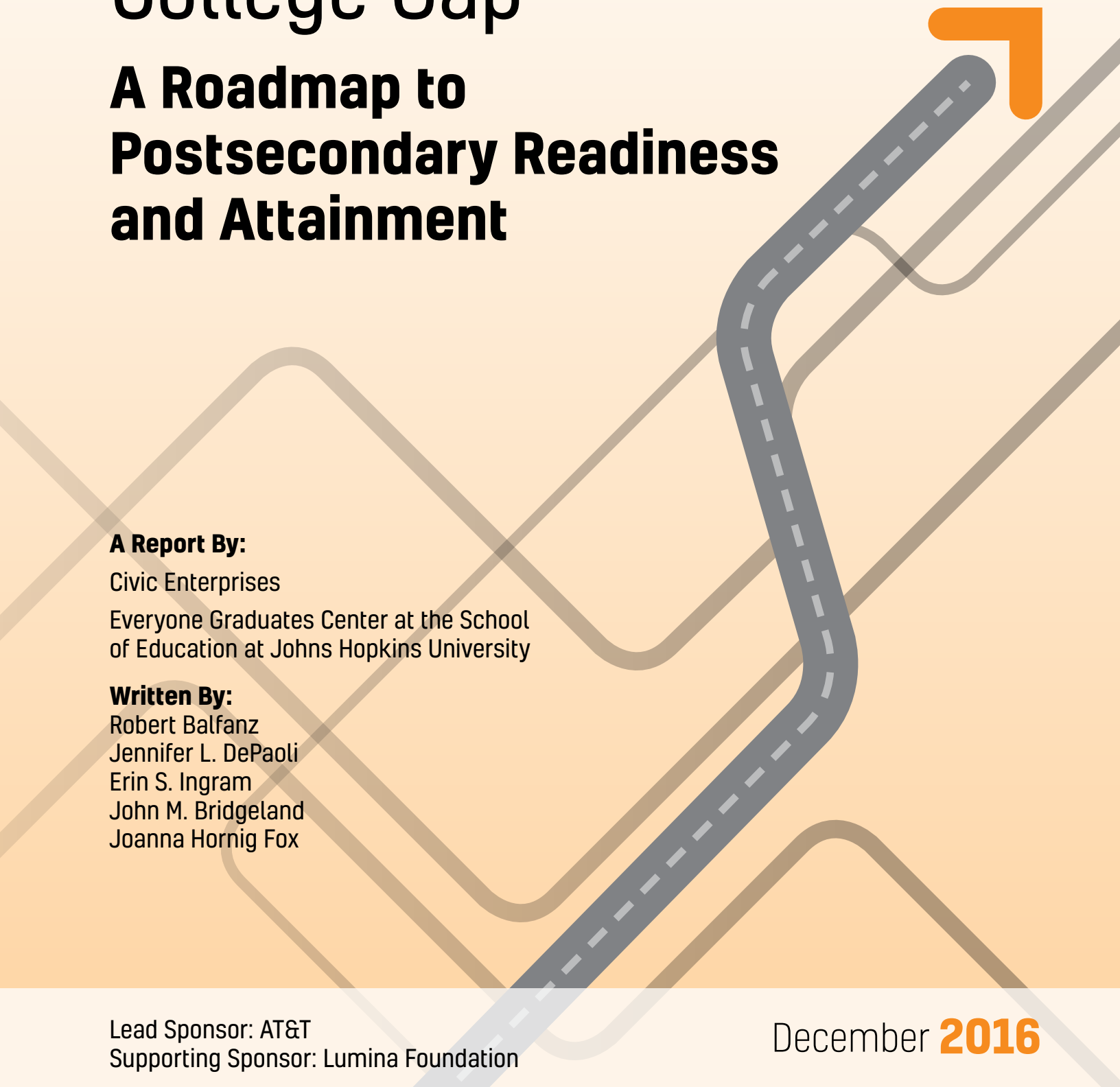
Closing the College Gap

A Roadmap to Postsecondary Readiness and Attainment



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Civic Enterprises

Everyone Graduates Center at the School of Education at Johns Hopkins University

Written By:

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Lead Sponsor: AT&T
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EXECUTIVE SUMMARY

Throughout much of the 20th century, the United States led the world in educational attainment and, in turn, economic and social progress. But that advantage has been slipping in recent decades, prompting the president and a host of governors and philanthropic leaders to set goals for America to reclaim its place as the world leader in the education of its people, and to foster the economic, social, and civic progress that would result.

In Part I of this report, we examine new and existing data on three successive cohorts of young adults whose educational attainment at 25-34 years of age can be measured today or projected in the future. The current cohort of 25- to 34-year-olds graduated from high school in 2008 or earlier and earned postsecondary degrees in 2014 or earlier; the second cohort is in postsecondary education or finishing high school; and the third cohort is in 1st through 10th grades today. We wanted to take a dispassionate view of how we are actually doing on the key national priority of postsecondary attainment, on the pipeline from high school to postsecondary education, and on the way forward to boost college readiness, access, and persistence in the future. We find reasons for hope and cause for alarm within each group.

The first cohort – the current generation of 25- to 34-year-olds – has the highest rate of postsecondary degree attainment in the nation's history and considerably higher levels than earlier generations. Whereas about one-third of 25- to 34-year-olds in the late 1960s and early 1970s earned an associate degree or higher, close to half of today's 25- to 34-year-olds do so. When you add in high quality certificates, this is the first cohort of young adults in which more than half have postsecondary degrees or credentials. But this also means that about half do not.

Between 2000 and 2014, when this first cohort was finishing postsecondary education, the nation witnessed a 77 percent increase in associate degrees and a 51 percent increase in bachelor's degrees, with more than one million additional such degrees earned during this period. Women, particularly those from upper-income families, have driven much of the growth in postsecondary attainment, while attainment rates of students of color and low-income students have climbed, but not as steeply.

Despite this progress, significant postsecondary attainment gaps for this first cohort persist: women outpaced men by 9 percentage points in attaining an associate degree or higher; the White-Black attainment gap stands at 15 percentage points; and the White-Latino degree attainment gap remains at 30 percentage points.

We are cautiously optimistic about the progress the second cohort we examine – the 25- to 34-year-olds of 2025 – may achieve in educational attainments and closing opportunity gaps. Most of them are currently enrolled in postsecondary education or finishing high school. High school graduation rates have risen substantially over the last decade, driven principally by Latino and Black students. Greater percentages of these high school graduates who are students of color are enrolling in postsecondary institutions. Latino student enrollment in postsecondary education more than doubled between 2000 and 2014, while Black student enrollment nearly doubled during that same period.

EXECUTIVE SUMMARY *continued*

Across multiple measures of college readiness, including GPA and course taking – the two strongest metrics of readiness – we find that recent high school graduates are as prepared for postsecondary success as the current cohort of 25- to 34-year-olds and more so than earlier generations. This is significant because it means as high school graduating classes and entering college students have become more diverse and less advantaged, their level of readiness has remained stable.

The significant increase in high school graduation rates between 2008 and 2014 and growing numbers of high school graduates immediately enrolling in postsecondary education suggest that if existing rates of persistence are maintained, the nation could be on pace to achieve its postsecondary attainment goal for 2025. Simply put, more students and more diverse students are now graduating from high school college ready and are in the college pipeline than ever before. If gains in high school graduation rates among more diverse students are matched by gains in college persistence, in particular among students of color and low-income and male students, then the nation will make progress toward fulfilling its creed of equal opportunity.

In a global economy, however, with other countries setting their sights on postsecondary attainment for the vast majority of their students, we believe the U.S. should stretch much further in its goals for postsecondary completion and preparation for an increasingly competitive workforce. Thus, we are most worried about the third cohort of young adults, who are in the 1st through 10th grades today, and will be the 25- to 34-year-olds of 2035. Without some significant actions all along the postsecondary pipeline, the rising tide of progress being experienced by our second cohort – the 25- to 34-year-olds of 2025 – will ebb. To ensure postsecondary attainment rates continue to rise and opportunity gaps narrow, the nation will need to solve some big challenges: 1) reforming and supporting the approximately 800 - 1,000 low-graduation-rate high schools in economically and socially isolated areas of the country where disproportionately large numbers of Black and Latino students are still found; 2) providing greater access to postsecondary institutions, particularly in Latino and low-education-attainment communities; and 3) redoubling efforts around postsecondary readiness and persistence for those students graduating with low GPAs. The quick wins and modest lifts have already been tapped. To keep postsecondary attainment rates rising, the nation will need to make major commitments and investments to reach and provide opportunity to all students.

In Part II of this report, we work to develop a road map to postsecondary success for all. We argue that a key to progress is taking a hard look at how we currently define college readiness and making sure that educators, parents, and students are focused on the high school outcomes that matter the most for postsecondary success. Standardized test scores largely drive the current conversation on readiness and have a role to play, but the data are overwhelming that the single best predictor of college success is a student's high school grade point average (GPA), combined with a college ready sequence of standards-based high school courses. GPA provides a well-rounded view of a student's performance in high school and is indicative of both content mastery and ability to navigate school. Giving greater attention to the courses students are taking, the content knowledge they gain, and the grades they earn can help broaden and contextualize the readiness discussion.

Finally, we lay out the most pressing challenges the nation must solve and where innovations will be

EXECUTIVE SUMMARY *continued*

needed the most, in order for postsecondary attainment rates to continue to rise and for opportunity gaps to continue to close, including:

1. Continuing to raise high school graduation rates and narrow existing opportunity gaps;
2. Taking a more holistic approach to college readiness metrics;
3. Improving readiness among students through greater emphasis on developing the cognitive skills required to succeed in college and career, cultivating the social and emotional skills that lead to success, and creating a "college mindset" early on;
4. Addressing issues of access, including tackling the cost of higher education, increasing the availability of postsecondary options in "education deserts," and eliminating disparities in enrollment in selective colleges;
5. Addressing postsecondary persistence issues by identifying struggling students early, improving the high school to postsecondary transition, and re-evaluating postsecondary policies on remediation and course scheduling; and
6. Providing better information on postsecondary options.

With the vast majority of career pathways requiring at least some postsecondary education, high school graduation is now a critical indicator of success – not the end point – on a young person's path to building a stable and successful life. Creating strong pathways to and through postsecondary education, especially for the students who are currently disproportionately underrepresented in higher education, is essential to breaking the cycles of poverty and disenfranchisement that plague our society and stop our nation from eliminating persistent educational, social, and economic gaps. We hope this report will prompt a deeper conversation about what drives college and career readiness, access, and persistence; what are the best indicators of a student being on track to postsecondary success; and what are the necessary and complementary roles that both the K-12 and higher education systems need to play. It is time to close America's college gap and become the land of opportunity for all.

CLOSING THE COLLEGE GAP:

The Challenge and Opportunity

Increasing the number of young adults who attain a quality postsecondary degree or credential has become a pressing national priority. The president has called for the United States to have the highest college completion rates in the world by 2020, and a growing number of governors, mayors, and major philanthropic and nonprofit leaders have set targets that call for 55 to 60 percent of all young adults to have a postsecondary degree or credential by 2025. This represents a five to 10 percentage point increase over current outcomes and a tipping point in our nation's history. Postsecondary education would become the common experience for most young adults, rather than the destination for some. These calls are driven by clear evidence that to succeed in today's economy, to secure the jobs of the future, and to enable greater civic participation in our democracy, most young people will need at least some postsecondary education to succeed.

To understand where the nation currently stands and what the future may hold, this report draws on existing and new data to examine prior trends, current realities, and future projections of the postsecondary attainments of young adults (25- to 34-year-olds) in the United States. It highlights where the challenges are to achieving sustained growth in postsecondary outcomes for all students, across racial, ethnic and economic lines by closely examining three successive cohorts of 25- to 34-year-olds: the 25- to 34-year-olds of 2015, and the next two cohorts to follow – the 25- to 34-year-olds of 2025, who are currently enrolled in postsecondary education or just finishing high school, and the 25- to 34-year-olds of 2035 who are now in first to 10th grade.

In the process, we highlight the four key factors that will determine if the United States achieves its postsecondary attainment goals. They are: 1) increasing high school graduation rates, in particular for low-income students, students of color, students with disabilities, English Language Learners, and homeless students; 2) improving readiness among those who graduate from high school but are not well-prepared for postsecondary education; 3) ensuring greater access to a range of postsecondary options for underserved and poorly matched groups; and 4) improving persistence rates among diverse student populations once they are enrolled.

In the second half of the report, our attention shifts to how these challenges can be met, as we map a path forward to postsecondary attainment for all students.

The urgency to boost postsecondary attainment is driven by two core tenets that are intertwined – equality of opportunity for all and global competitiveness. Closing opportunity gaps and providing meaningful pathways to employment, regardless of race, ethnicity, income or gender, will require a significant increase in the number of low-income students, students of color, and men who obtain postsecondary degrees or credentials. A generation ago, the United States led the world in college attainment, but now is in the middle of the pack on college completion and educational mobility.[1] Thus, the nation's economic, technological, and civic competitiveness and effectiveness in the 21st century will be greatly affected by the extent to which it opens up new opportunities for postsecondary completion for more Americans.

PART I

A Closer Look at Educational Attainment and Postsecondary Inequities for Young Adults

COHORT 1:

Postsecondary Outcomes for the 25- to 34-Year-Olds of 2015

Today's young adults (25- to 34-year-olds in 2015) have the highest levels of postsecondary attainment in the nation's history. Compared to the cohorts that preceded them, they have experienced greater gains in postsecondary completion but also a widening of opportunity gaps.

This century has experienced considerable growth in postsecondary degree completion among young adults. The number of degrees being conferred in the U.S. has increased substantially, with more than 400,000 new associate degrees and 600,000 new bachelor's degrees earned between 2000 and 2014. This represents a 77 percent increase in associate degrees and a 51 percent increase in bachelor's degrees over that time period – far outpacing population growth, which was only 11 percent over this period.[2]

As a result, and as seen in data from the Census Bureau's Current Population Survey (CPS), the current cohort of 25- to 34-year-olds has considerably higher levels of postsecondary degree attainment than earlier generations. Close to half of today's young adults have an associate degree or more. The cohort they are replacing in the workforce came of age in the late 1960s and early 1970s, and in comparison, approximately one-third of them earned an associate degree or more. Thus, over two generations, the percent of young adults receiving some college increased 15 percentage points, those earning an associate degree or more increased 13 percentage points, and a bachelor's degree or more increased by nine percentage points. As a result, nearly two-thirds of young adults today have experienced some college, and almost 50 percent have some type of college degree (36 percent bachelor's degrees and 11 percent associate degrees). The increase in young adults earning a postsecondary degree is progress, and if high quality certificates are added in (see sidebar on page 8), it appears that the U.S. has crossed the 50 percent threshold in terms of postsecondary attainment among young adults. This is a critical milestone in that the nation has for the first time reached the threshold of postsecondary attainment becoming the normative experience.

Yet it also means that there are still just about as many young people not attaining a postsecondary credential as those who are. This is problematic, given that most jobs in the future will require some postsecondary education. The number of jobs requiring a postsecondary degree or certificate still outpaces the number of students securing those credentials. In fact, the Georgetown University Center on Education and the Workforce found that in the wake of the Great Recession, 11.5 million of the 11.6 million jobs created in the recovery went to workers with at least

TABLE 1. Current Levels of Postsecondary Attainment 2015 (CPS)

	25-34 years old	65 + years old
Some college or more	65%	50%
Associate degree or more	47%	34%
Bachelor's degree or more	36%	27%

some postsecondary education, and that the vast majority of "good jobs" – those paying $53,000 or more a year for full-time work and come with benefits – were filled by those with at least some postsecondary education.[3]

High-Quality Certificates

Degree attainment counts do not include the number of postsecondary certificates earned, but these credentials often hold significant value in the job market. In 2016, the Lumina Foundation contracted with NORC at the University of Chicago to administer a survey to determine how many Americans earned high-quality certificates (i.e., those earned in the field in which an individual was employed). The survey found that 4.9 percent of Americans hold a high-quality certificate as their highest credential, thus boosting the current levels of postsecondary attainment. As more jobs are created that require high-quality certificates and other alternative credentials, more data needs to be collected to accurately reflect them in postsecondary attainment rates.

Overall growth in postsecondary attainment, moreover, masks important differences among various populations of students. Women, particularly those from upper-income families, have driven much of the recent growth in postsecondary attainment. Students of color and low-income students have also seen their postsecondary rates climb, but not as fast. The result is that while more young adults from all racial, ethnic, and economic groups and genders have higher rates of postsecondary credentials today than in the past, gaps between women and men, White and Black students, White and Latino students, and upper- and lower-income students have all grown.

Postsecondary Attainment Gaps by Gender, Race/Ethnicity, and Income

Currently, there are significant postsecondary attainment gaps by gender, race, ethnicity and income:

Gender Gap: In 1976, more men than women earned bachelor's degrees, but the rate at which males earned bachelor's degrees then dipped and did not meet 1976 levels until 2011 – a 35-year period without an increase. By contrast, females earning bachelor's degrees climbed more or less steadily throughout this period, rising from 20 percent in 1976 to 36 percent in 2010.[4] In 2015, the percentage of women earning bachelor's degrees was nearing 40 percent. When taking associate degrees into account, the number of young women earning any type of degree is now roughly 50 percent, while just 42 percent of young men have earned an associate degree or higher.[5]

Black/Hispanic-White Gap: Although the percentage of Black and Hispanic/Latino young adults earning an associate degree or higher has increased over the past 20 years, the gap between the percentage of White-Black attainment gap is roughly 15 percentage points, and the gap between White and Hispanic/Latino young adults is twice that. Similarly, the percentage of Black and Hispanic/Latino young adults earning a bachelor's degree or higher increased between 1995 and 2015, but the double-digit gaps in such attainment between Black and White students and between Hispanic/Latino and White young adults still persist.[6]

Low-Income Gap: The Educational Longitudinal Study of 2002 shows that within eight years of high school graduation 60 percent of the students from the high school class of 2004 who came from families with high social and economic status (the top quartile) earned a bachelor's degree or higher and 72 percent received a postsecondary certificate or degree. By contrast, only 14 percent of 2004 high school graduates from families in the lowest quartile of social and economic status earned a bachelors degree or higher and 35 percent received a postsecondary degree or certificate. Thus, among the current cohort of 25- to 34-year-olds, those who came from the most advantaged families earned bachelor's degrees at more than four times the rate of those who came from the least advantaged families. Moreover, where nearly three-quarters of those from the most advantaged families earned a postsecondary degree or credential, just a little more than a third from the least advantaged families did so.

Analyzing census data and two longitudinal surveys that followed young adults in different time periods, Dynarski and Bailey (2011) bring the historical and current trends in postsecondary degree attainment together. They find:

> *growing gaps between children from high- and low-income families in college entry, persistence, and graduation. Rates of college completion increased by only four percentage points for low-in-*

come cohorts born around 1980 relative to cohorts born in the early 1960s, but by 18 percentage points for corresponding cohorts who grew up in high-income families. Among men, inequality in educational attainment has increased slightly since the early 1980s. But among women, inequality in educational attainment has risen sharply, driven by increases in the education of the daughters of high-income parents.

Tabulations derived from Table 2 below, show that closing the postsecondary degree attainment gap between men and women, and among Whites, Blacks, and Latinos would both increase equality of opportunity and substantially raise the overall postsecondary attainment rates.

TABLE 2. Percent of 25- to 34-year olds with an Associate Degree or Higher By Gender, Race and Ethnicity (2015)

	% with Associate Degree or Higher	Gap
Female	50.7	
Male	42.3	-8.4
White	47.6	
Black	32.3	-15.3
Non-Hispanic White	54.7	
Hispanic* (of any race)	24.7	-30.0
Asian	71.3	
White	47.6	-23.7

* - Hispanic is an ethnic category that is nonexclusive of race, and thus overlaps White/Black

Source: NCES High School Longitudinal Study of 2009 (HSLS: 09)

Source: U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement

The current overall rate of 25- to 34-year-olds with an associate degree or higher is 46.5 percent. If the male rate were equal to the female rate, the overall rate would grow to nearly 51 percent. If the Black rate were equal to the White rate, the overall rate would be roughly 49 percent. If the Hispanic rate were equal to the non-Hispanic White rate, the overall rate would increase to approximately 53 percent. If the White rate were equal to the Asian rate, the overall rate would be about 64 percent.

Progress and Challenges for the Post-Nation at Risk Cohort of Young Adults

The nation's current cohort of 25- to 34-year-olds was between 10 and 19 years old in 2000, and largely attended college through the 2000s. As such, compared to their most recent predecessors, they experienced considerable growth in postsecondary enrollment and completion rates. They were also the first group to feel the full impact of the educational reforms started in the wake of the 1983 report, "A Nation at Risk", in particular a shift to a more academically focused high school experience, and a considerable rise in the number of high school graduates taking advanced mathematics and science courses. They also experienced firsthand the cost of rising inequities in postsecondary attainment rates during this period, when as 18- to 27-year-olds in 2008, they felt the full brunt of the Great Recession during their early adulthood. This brought into stark relief the economic and social costs of being a postsecondary educational have-or-have-not. It was also this cohort that cemented an historical shift in the educational attainments of men and women, as women drove forward national gains in postsecondary attainment and widened their postsecondary outcome advantage over men. The irony is that in closing and then reversing historic inequities between male and female postsecondary attainment rates, the gains made by females inadvertently widen opportunity gaps between upper- and lower-income students, Blacks and Latinos.

COHORT 2:

Today's High School and College Students – The 25- to 34-Year-Olds of 2025

The challenge the nation now faces is how to continue accelerating postsecondary completion among all students while also closing opportunity gaps. To examine the contours of this challenge and understand where the U.S. is and is not making progress, we now turn our attention to examining two future cohorts of young adults. First, we examine our second cohort, the 25- to 34-year-olds of 2025. In 2015, this cohort was 15 to 24 years old, meaning that most of its members

TABLE 3. High School Graduation Rate Gaps (Adjusted Cohort Graduation Rates)

	2011 ACGR	2014 ACGR	Change
Black	67%	73%	
White	84%	87%	
Gap	**+17%**	**+14%**	**-3**
Hispanic*	71%	76%	
White	84%	87%	
Gap	**+13%**	**+11%**	**-2**
Asian and Pacific Islander	87%	89%	
White	84%	87%	
Gap	**+3%**	**+2%**	**-1**
Low-Income	70%	75%	
Non-Low-Income*	86%	89%	
Gap	**+16%**	**+14%**	**-2**

* - Hispanic is a racial category and exclusive of White/Black/Asian

** - Estimate based on difference between Overall Rate and Low-Income rate

Source: U.S. Department of Education, EdFacts Data Files, Regulatory Adjusted Cohort Graduation Rate data

are currently enrolled in postsecondary schooling or completing the last years of high school. We then turn our attention to our third cohort, the 25- to 34-year-olds of 2035, who are currently in the first to 10th grade.

To understand the extent to which postsecondary attainments will continue to increase and current postsecondary attainment gaps might be closed by the next cohort of 25- to 34-year-olds, we need to turn attention to what is known about current rates and trends in high school graduation rates, postsecondary enrollment and access, and college readiness and persistence, particularly among men, students of color, and students from low-income families.

Recent Trends in High School Graduation Rates

Most of the recent gains in high school graduation rates have been driven by improvements among Black, Latino, and low-income students. Between 2006 and 2012, high school graduation rates (as measured by the Averaged Freshman Graduation Rate) for Latino students increased by 15 percentage points and for Black students by nine points. Under the current Adjusted Cohort Graduation Rate (ACGR), these rates have continued to climb through 2014. Since graduation rate reporting on low-income students began in 2011, rates for these students have increased by nearly five percentage points. As a result, and seen in Table 3, graduation gaps among White, Black, and Hispanic students have been closing, as well as those between low-income students and their higher-income peers. If continued through to postsecondary enrollment and persistence, these high school graduation rate gains and gap closings would translate into both increased postsecondary attainments and greater equality of outcomes.

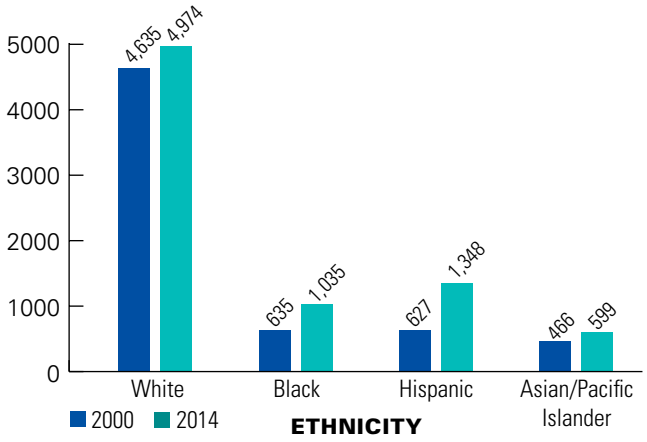
A significant deficiency in the federal reporting system for graduation rates is that rates are not disaggregated by gender. Given the growing gap between men and women in postsecondary attainment, this is a critical piece of information, as without it we cannot fully understand the source of the gap. However, a majority of states do collect and report high school graduation rates by gender, and these data, across 28 states, show female students graduate from high school at rates ranging from three to nine percentage points higher than male students. Thus, to close postsecondary attainment gaps between men and women, the first step will be closing the high school graduation rate gender gap.

Recent Trends in Postsecondary Enrollments

As high school graduation rates have risen substantially from 2000 to 2014, greater percentages of high school graduates are enrolling in postsecondary institutions. The percentage of recent high school graduates enrolling in postsecondary institutions rose from 63 percent in 2000 to 68 percent in 2014.

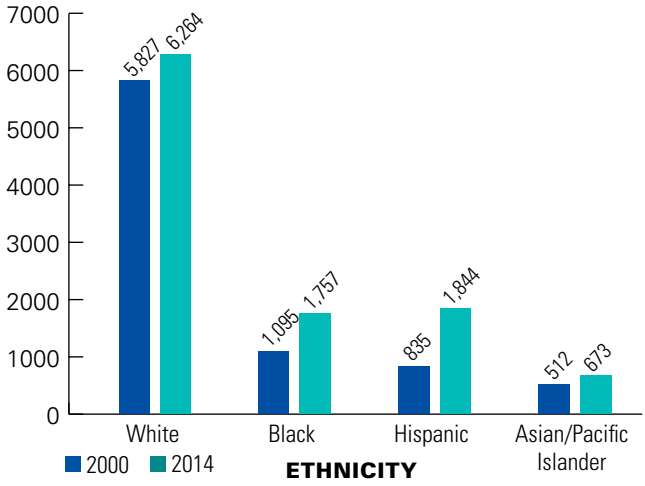
Recent postsecondary enrollment trends also show that more students of color and low-income students are enrolling in U.S. postsecondary institutions than ever before. White students continue to enroll at high rates and still represent the majority of college goers in the United States; however, the percentage of White students enrolling in postsecondary declined from 69.8 percent in 2000 to 57.2 percent in 2014. As was the case for high school graduation rates, students of color have also been the driving force behind the uptick in postsecondary enrollment. Latino student enrollment more than doubled between

FIGURE 1. Male Enrollment in Degree-Granting Postsecondary Institutions, by Selected Race/Ethnicity between 2000 and 2014



SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1976 and 1980; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:90); and IPEDS Spring 2001 through Spring 2015, Fall Enrollment component. (This table was prepared October 2015.)

FIGURE 2. Female Enrollment in Degree-Granting Postsecondary Institutions, by Selected Race/Ethnicity between 2000 and 2014



SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1976 and 1980; Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:90); and IPEDS Spring 2001 through Spring 2015, Fall Enrollment component. (This table was prepared October 2015.)

2000 and 2014. This upward trend is similar for Black and Asian/Pacific Islander students as well. Among low-income students, as their high school graduation rates have improved since the turn of the century, the percentage of low-income high school graduates enrolling in either a two-year or four-year college directly after high school has also increased from 50 percent in 2000 to 58 percent in 2014.[7]

Although postsecondary enrollment rates were up for both men and women between 2000 and 2014, the gender gap between women and men in postsecondary participation does not appear to be decreasing. With the exception of Black students, who saw a 66 percent increase in postsecondary enrollments among men versus a 60 percent increase among women, the rate of postsecondary enrollment increases between 2000 and 2014 was higher for women than men. Among Latinos, there was a 125 percent increase among women versus a 114 percent increase among men; for Asians, a 31 percent increase among women versus 28 percent for men; and among Whites an eight percent increase for women versus a seven percent increase for men.

Continued Postsecondary Access Challenges

The recent progress in postsecondary enrollment rates for students of color and low-income students speaks volumes about historically under-represented students gaining increased access to postsecondary education in the U.S. It is tempered by the statistics about the unequal breakdown in access and the types of institutions these students are attending.

The recent work of Hillman & Weichman on "education deserts" shows, for example, that students of color, especially Latino students, and students who live in areas of lower educational attainment have fewer postsecondary options, and in particular, access to four-year degree granting institutions.[8] It also shows that in a choice-based system, for a range of reasons, students and families prefer to attend postsecondary institutions closer to home. This is particularly pertinent given that the number of Latino students in U.S. public schools is increasing at a faster rate than all other student groups. As a result, future gains in educational attainment among 25- to 34-year-olds may be limited by the lack of access to postsecondary

TABLE 4. Percent of Cohort 1 and 2 Graduating from High School On Time and Enrolling in Postsecondary Right After High School: 25- to 34-Year-Olds of 2015 vs 25- to 34-Year-Olds of 2025

Mid-Point of Cohort	HS Grad Rate when 18	Percent of HS Graduates Enrolled in College Year After HS	Percent 9th Grade Cohort Enrolled in College Year of On-time HS Graduation
29-year-old (2015)	73.9% (2004)	63.9% (2004)	47%
29-year-old (2025)	82.3% (2014)	68.4% (2014)	56%

institutions, especially four-year institutions within commuting distance of growing Latino populations.

A 2013 report by the Georgetown University Center on Education and the Workforce found that, overall, Whites represented 62 percent of the college-age population (18-24 years old) in 2009, but 75 percent of the students at the most selective four-year colleges. Black and Hispanic/Latino students represent 33 percent of the college-age population, but only 15 percent of students at the most selective four-year colleges.[9]

Income also played a role in the type of postsecondary institution in which students enrolled. In 2001, 57 percent of first-time degree- or certificate-seeking students receiving Pell Grants (targeted toward lower-income students) enrolled in four-year institutions, compared to 71 percent of non-Pell recipients. The gap widened in 2012, with 75 percent of non-Pell Grant students enrolling in four-year institutions and just 55 percent of Pell Grant recipients doing so. Conversely, students receiving Pell Grants enrolled in two-year colleges at higher rates (43 percent in 2001 and 46 percent in 2012) than non-Pell Grant recipients (30 percent in 2001 and 25 percent in 2012).

Research on where lower-income students enroll in college is similar to the data on racial disparities in college enrollment. A 2007 report found that even higher-achieving low-income students were less likely to attend the most selective colleges, more likely to attend the least selective colleges, and *less* likely to graduate when attending the least selective colleges than their higher-income peers.[10] A more recent study found the same: the majority of low-income high achievers do not apply to any selective college despite the fact that more selective colleges offer greater financial aid and low-income students who do attend tend to graduate at higher rates than their low-income peers at less selective schools.[11]

Assessing the Impact of Rising High School Graduation and College Enrollment Rates for Cohort 2: 2025's 25- to 34-Year-Olds

Table 4 shows how the next cohort of 25- to 34-year-olds (2025) compares to the current cohort of 25- to 34-year-olds (2015) in terms of high school graduation rates and college enrollment rates. It does this by comparing these outcomes for the mid-point of each cohort, 29-year-olds. Less than half (47 percent) of the current cohort of 25- to 34-year-olds (2015) graduated high school on time and immediately enrolled in college. This ultimately translated into a 47 percent postsecondary degree attainment rate for the cohort. A decade later, the rate at which students were graduating from high school on time and immediately enrolling in postsecondary institutions had increased by almost 10 percentage points to 56 percent. This is the result of large gains in high school graduation rates, and modest gains in percent of high school graduates immediately enrolling in postsecondary institutions.

This suggests that if existing rates of readiness and persistence are maintained, the nation could be on pace to achieving a 55 percent attainment rate (counting high value certificates) for 25- to 34-year-olds by 2025. If readiness and/or persistence can be improved, then it could reach the 2025 goal of 60 percent. Moreover, since the gains in high school graduation and college enrollment rates have been driven by low-income, Black, and Latino students, the data suggest that opportunity gaps in postsecondary attainment may begin to close with the 2025 cohort of 25- to 34-year-olds.

Measuring Postsecondary Readiness

More students earning high school diplomas and growing rates of postsecondary enrollment among all students, and in particular among students of color

and low-income students, will only translate into gains in postsecondary attainment and a closing of the opportunity gap among the next generation of young adults if they actually result in more postsecondary degrees. This will occur to the extent that recent high school graduates are as ready or more ready to succeed in college as prior cohorts, and are able to persist to degree completion. It is to these areas that we now turn our attention.

In a later section of this report, we conduct a deep review of how prepared recent high school graduates are to succeed in postsecondary institutions by existing measures of college readiness compared to the cohorts that came before them. What it shows is that by all existing measures, current high school graduates are as prepared as their most recent predecessors, and more prepared than students from a generation ago. When similar rates of readiness are applied to an increasing percent of students graduating from high school, it shows that by any measure more students, and in particular more low-income students and students of color, are graduating from high school college ready than ever before. Thus, it is good news that gains in high school graduation and college enrollment rates by low-income, Black, and Latino students will likely be the major drivers of increased postsecondary attainment and decreasing opportunity gaps among the next generation of young adults in the US.

At the same time, the existing college readiness data is also clear that significant numbers of students continue to graduate from high school with some risk that they will struggle to succeed in college. In prior eras, when many pathways to adult success did not require postsecondary schooling, this was less problematic than it is in an era where postsecondary schooling or training is increasingly necessary to holding a job that enables you to support a family. Solving this readiness gap falls on both institutions of higher learning and the K-12 education system. In order to better understand the magnitude and nature of these challenges, we conducted original analysis of the most recently available national longitudinal survey.

Using the National Center for Educational Statistics' High School Longitudinal Study of 2009, which tracked students from the ninth grade in 2009-10 through to high school graduation and postsecondary enrollment in 2013, we can get a good sense of the extent of postsecondary preparation among a recent class of high school graduates. The Class of 2013 was the graduating class that, at the time, posted the highest graduation rate in U.S. history at 81.4 percent. Understanding their characteristics allows us to directly examine the readiness levels of high school students who were a part of the rise in graduation rates.

In order to determine current levels of college readiness, we applied the two metrics that have the strongest evidence – high school course taking and GPA (see Part II for a detailed discussion). The first suggests the extent to which recent graduates are taking college readiness course sequences, including advanced courses in mathematics and science. The second provides an indication of how well students are doing in those courses. By combining the two metrics, we can see how many graduates have both taken the sequence of courses linked to college readiness and demonstrated a sufficient level of achievement in them. Each metric also offsets some potential weaknesses of the other, in that GPA alone could capture students who took easy courses and course sequence by itself includes students who took a course but may have done poorly in it. Using these two metrics, we find that the 2013 high school graduates break down into four distinct groups:

1. **Entering Postsecondary College Ready:** About half of recent high school graduates enrolled in a postsecondary institution immediately after high school graduation and appear to be college ready based on their course taking and GPA.
2. **Entering Postsecondary with Potential Warning Signs:** About 22 percent of high school graduates are enrolling in postsecondary schooling with high school records that indicate they may not be strongly prepared for college and are at some risk of struggling to succeed in college.
3. **Not Immediately Entering Postsecondary but Appear Ready:** About five percent of high school graduates appear college ready by their course taking and GPA but did not immediately enroll in postsecondary the year after high school graduation.
4. **Not Immediately Entering Postsecondary and Do Not Appear Ready:** About 22 percent of the high school graduates from the class of 2013 did not immediately enroll in postsecondary and by course taking and GPA college ready measures did not appear to be ready to do so.

Examining these groups more closely helps us better define the nature and contours of the nation's college readiness challenge.

For students entering four-year colleges or universities immediately after high school, being college ready is the norm, as measured by course taking and GPA. Seventy-nine percent of students from the class of 2013 who entered four-year institutions directly after high school had a B average or better GPA, 86 percent had 24 or more high school credits, and 78 percent had completed a college ready core curriculum in high school.

Among immediate enrollees in four-year institutions, there is broad similarity among students from different races, ethnicities, income levels, and gender in terms of high school GPA, academic credits, STEM credits, and taking a college ready core curricula. Where there are differences is in upper level math and science course taking, particularly in calculus and physics between high- and low-income students. This would seem to indicate that there is a basic level of college readiness that is achieved by high school graduates who immediately enroll in four-year institutions that cuts across racial, ethnic, class and incomes lines. Thus, differences in college graduation rates across these subgroups may be more related to persistence issues once they are enrolled in college, rather than readiness issues before their enrollment. Dynarksi and Bailey found similar outcomes in their 2009 analyses of earlier longitudinal surveys. Some of this is driven by the admissions requirements of four-year institutions that have required course-taking sequences and minimum GPAs, but among four-year institutions there are also a large number of open-access or minimally selective schools.

About 40 percent of the 2013 graduates who enrolled in two-year institutions had college readiness profiles similar to students who enrolled in four-year colleges. They had B or better averages, 24 or more high school credits, and had taken a college ready high school course sequence. The other 60 percent fell more in the "entering with warning signs" category – they had C averages (though some entered with D averages) and about half did not take the traditional college prep curriculum in high school. This indicates that, to be true to their mission, most community colleges will need to find ways to provide a majority of their students with the supports they need to persist to degree or certificate attainment.

There are about five percent of recent high school graduates who appear to be college ready but did not immediately enroll in a postsecondary institution after high school. Among those not entering postsecondary right away, 20 percent had a GPA of B average or higher and 42 percent took a college ready curriculum. Some of these students may be taking time off before enrolling (e.g. a planned gap year), but others may not be enrolling because of financial considerations or lack of advising on how to navigate the college application and financial aid process. This is problematic, as evidence suggests that delaying entry into college may increase the difficulty of completing a postsecondary degree.

On the other hand, about one in five high school graduates are entering postsecondary institutions with warning signs that they may not be fully prepared to succeed or are at some risk of struggling to succeed. In the class of 2013, 19 percent of students entering four-year colleges had C averages and two percent had D averages, while 22 percent completed less than the traditional college ready curriculum in high school. At the two-year college level, this grows to 58 percent of students entering with less than a B average (47 percent had a C average and 11 percent had a D average) and 36 percent who did not complete the traditional college ready curriculum in high school. Many of these students may well be able to succeed in college, as motivations and the quality of instruction they receive may improve considerably. Evidence from the earlier ELS: 2002 longitudinal survey that followed 2002 high school sophomores through postsecondary schooling shows that some students who entered institutions of higher learning with low high school GPAs were able to obtain postsecondary degrees. However, among the students who enter postsecondary with warning signs, there will be a set of students who without more tailored and consistent academic and social and emotional supports will struggle to succeed.

Finally, about 22 percent of 2013 high school graduates did not immediately enroll in postsecondary schooling and appear to have either warning signs or clear signals that they are not fully college ready. Most had C averages, but some had D or F averages, and close to 75 percent did not complete a traditional college ready curriculum.

Distressingly, the greatest subgroup differences are found among students who enter postsecondary with warning signs or are among the students who are in the "not entering" and "not fully prepared" group. Black, Latino, low-income, and male students are over-represented in the Entering with Warning Signs and Not Entering/Not Fully prepared groups. The driving force behind this is high school GPA. Among high school graduates, 65 percent of Black students, 57 percent of Latino students, 60 percent of low-income students, and 50 percent of male students have C or D averages, compared to 33 percent of White students, 21 percent of high-income students, and 37 percent of female students. By contrast, not taking the traditional college ready course sequence appears to be more evenly distributed across all groups.

The college readiness patterns found among the class of 2013 show that it will take a sense of shared responsibility and coordinated action between institutions of higher learning and the K-12 education system to enable all students to succeed in postsecondary education or training. As postsecondary schooling becomes common place for more young adults, institutions of higher learning will need to adapt and learn how to provide students who enter with warning signs, such as C averages, with the supports they need to succeed.

Central to the American creed is the idea of multiple chances to shape your future. In an appropriately open access, postsecondary system, this means both four-year and two-year colleges cannot be organized on the premise that they only educate fully prepared students. There will always be students who for a host of reasons live in environments that do not provide the enabling conditions or motivations to allow and encourage students to both learn at high levels in high school and demonstrate that learning through established means. However, with new environments, appropriate supports, and oftentimes additional maturity, these students can succeed in postsecondary. It is then incumbent upon postsecondary institutions not to let these students sink or swim on their own, but rather to provide the pathways, structures, and resources that will enable them to thrive.

The students who are not graduating high school on time, which in 2015 (the most recent year for which data is available) was about 17 percent of students, the students either entering community colleges with D averages, and those with C and D averages who do not enter postsecondary schooling are clearly in the province of K-12 education. Together, these groups make up about one third of high school students. This indicates that a key lever in decreasing female/male, low-income/high-income, and students of color postsecondary attainment gaps will be creating the conditions and supports for these groups to do well in college ready high school courses. As long as low-income students and students of color continue to be concentrated in a sub-set of low-performing high schools not designed to provide the social supports and learning opportunities they need to do well in school while taking a college ready curriculum, it will be difficult to fully close the postsecondary opportunity gap. Therefore, efforts must be redoubled at the K-12 levels to ensure they are prepared for the challenges to come.

What Do We Know about Current Rates of College Persistence?

The potential of more students who graduate from high school and are prepared for postsecondary success among the next generation of young adults will only be fully realized if these students persist through to postsecondary degree attainment. Thus, we turn attention to what is known about the current state of postsecondary persistence. Since the 25- to 34-year-olds of 2025 are still enrolled in college or high school, the most recent persistence data is only available for earlier cohorts. As such, we will use this earlier data to identify where the opportunities for future cohorts to improve on current outcome lies.

While 47 percent of adults between the ages of 25 and 34 in 2015 had obtained an associate degree or higher, only 65 percent had received some college education. This shows that there are considerable numbers of young adults who start college but do not finish it. Table 5 shows that nearly one in five 25- to 34-year-olds in 2015 participated in some college but did not receive a degree. Some of these young adults may be late entrants to college who are still enrolled, but most were not able to persist to obtain a degree. Slightly less than half attended college for one year or less, and five percent attended college for four or more years without yet obtaining a degree.

TABLE 5. Some College but No Degree 25- to 34-Year-Olds 2015

Attended College, Did Not Receive a Degree 2015	25- to 34-years-old	
	Number	Percent
Less than 1 year college, no degree	1,146	2.7
One year of college, no degree	2,405	5.6
Two years of college, no degree	2,925	6.8
Three years of college, no degree	985	2.3
Four or more years of college, no degree	482	1.1
TOTAL	**7,943**	**18.5**

Source: U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement

The ELS: 2002 survey provides additional insight into the characteristics of students who were unable to complete postsecondary degrees. In part, persistence is related to preparation. Ten years after graduating high school, 35 percent of the students who enrolled in postsecondary institutions and had a C average in high school did not have degrees, and the same was true for 40 percent of D and F students. Some well-prepared students, however, also did not earn degrees – 26 percent of students with B averages in high school and 13 percent of students with an A average, suggesting not all persistence challenges are the result of insufficient college readiness. In a 2009 study, Dynarski and Bailey found similar results using other longitudinal surveys, noting that low-income students who graduated high school with similar cognitive skills to higher-income students persisted in college at lower rates.[12]

Thus, the persistence data echo much of what we learned through an in-depth analysis of the readiness data for the class of 2013. There are major opportunities for institutions of higher learning to help advance the growth of educational attainment and close opportunity gaps among the next generation of young adults. Cutting the current attrition rate by just a third, combined with the recent gains in high school graduation rates and college enrollments, would likely push the post-secondary attainment of young adults (including high value certificates) above 60 percent. This will require both more early attention and more supports to students who enter postsecondary with some warning signs, improving the college match first-generation students make, and addressing the barriers that negatively impact the postsecondary success rates of low- and middle-income students and students of color.

Progress and Challenges for Cohort 2: The 25- to 34-Year-Olds of 2025

The 25- to 34-year-olds of 2025 are the children of No Child Left Behind and Race to the Top, as their formative years in the K-12 system predominantly span from 2000 to 2016. Their outcomes of increasing high school graduation rates, maintaining the level of college readiness of the prior less diverse cohort, and increasing college enrollment rates, driven primarily by gains among students of color and, to some extent, lower-income students, reflect efforts to use standards and accountability frameworks during this era to drive both excellence and equity. These are also the children of the high school reform efforts of the 2000s and early 2010s which led to cutting in half the number of low graduation rate high schools in the nation, and even greater reductions in the number and percent of low-income minority students attending high school where a high school diploma, let alone a college degree, was not the norm. Finally, they are the first generation to experience more concerted efforts among institutions of higher learning focused on increasing postsecondary persistence and graduation rates. Thus, the first cohort to experience concerted efforts at both the K-12 and higher education levels to make high school graduation and postsecondary attainment an avenue of advancement for all is on track to be the first cohort of 25- to 34-year-olds in recent history to push national postsecondary attainment rates upward and close opportunity gaps.

The challenge for this cohort is that despite fifteen years of sustained federal, state, and local efforts to propel more students, including students of color and low-income students, to graduate high school college ready and enroll in postsecondary institutions, a third of the cohort is still being left behind. These are the 17 percent of high school students who are not graduating from high school on time, and the 17 percent or so who are graduating from high school, but are either not enrolling immediately in postsecondary or not ready to succeed in postsecondary schooling according to existing measures. Despite the

progress made to open the avenues of educational advancement to all, the students still being left behind are predominately students who live in poverty, Black and Latino students, students with disabilities, and English Language Learners. They are also more male than female. Failure to provide these students with pathways to adult access through increased educational and training attainments will result in continued economic and social distress – for the students left behind, their communities, and the nation.

COHORT 3:

Today's First to 10th Graders – The 25- to 34-Year-Olds of 2035

In order for the nation's postsecondary attainment rate to continue to rise and opportunity gaps to continue to close, it will be necessary to propel forward the students currently not making it. Since the third cohort of future 25- to 34-years-olds we examine are currently in the first to 10th grade, we are limited in the amount of data we can directly examine. Thus, we focus our analysis on what we know about the students who currently are not on track to achieve postsecondary success.

We know three important facts about this group of students. First, currently there are very few students who do well in high school who are not enrolling in college. Only about five percent of high school graduates from the class of 2013, for example, had an A or B average, took a college readiness sequence of courses, and did not immediately enroll in postsecondary institutions. Thus, the vast majority of students who are currently graduating from high school and not enrolling immediately in postsecondary are not strongly prepared to succeed in college. Many have low C and D averages, and considerable numbers have not taken a college ready course sequence. These students are not just a short distance from college readiness - in many cases, they are a long way off. The same is true for most of the 17 percent of students who are not graduating on time from high school. Therefore, to keep postsecondary attainment rates rising and opportunity gaps closing, there is a pressing need to find solutions for those students for whom the current education system is not working.

Second, the students who continue to struggle are poorer than the students who are succeeding. Significant numbers are not only low-income, but also live in neighborhoods of concentrated poverty where they are impacted by both family struggles and by the struggles of their neighbors. To succeed in school, these students, like all students, will need solid instruction and good teachers. But they will also need student and social supports to overcome the challenges of poverty, which make it harder for them to attend school every day, focus while in class, and get their work done. This is reflected in the fact that in many of the high-poverty communities where students who have been left behind reside, chronic absenteeism, school suspension, and course failure rates typically range from 30 to 50 percent.

In addition, not only will readiness challenges need to be solved and enhanced student supports provided, but real obstacles to postsecondary access, involving cost, location, and first-generation challenges, will need to be dealt with, as well. Currently, over 90 percent of upper-income students graduate from high school, and 80 percent enroll immediately in postsecondary. There is not much room for national progress to be driven by the well-off. Conversely, 75 percent of low-income students currently graduate from high school, and less than 60 percent of low-income high school graduates enroll immediately in postsecondary. Given that half of all public school students now come from low-income families, it is clear that future growth in postsecondary attainments will need to come from the less well-off.

Third, males are over-represented among the students left behind. More male students have C and D averages, and fewer have A and B averages. More men than women drop out of high school, fewer male high school graduates enroll immediately in postsecondary schooling, and more males become involved with the juvenile justice system. Closing the male-female postsecondary attainment gaps will take a deeper understanding of the factors and forces which are leading to lower rates of high school graduation and postsecondary enrollment and persistence among men.

The Unique Experiences and Challenges Facing First-Generation College Students

Navigating the pathway to college is a challenging experience for all students. This is especially true for high school graduates seeking to become the first member of their family to attend college, commonly referred to as first-generation (first-gen) college students. While many high school seniors have the guidance of parents or siblings who have gone through the college application process before, first-generation students often must navigate these uncharted waters on their own.

Each year, nearly one-third of students entering two- or four-year colleges are first-generation college students.[1] Many of these first-generation students come from low-income families, and they tend to be disproportionately Black and Hispanic.[2] Moreover, for nearly 20 percent of low-income, first-generation college students, English is not their native language.[3] College persistence rates for first-gen college students lag well behind their peers, especially for those who come from low-income backgrounds. Research has shown that just 10.9 percent of low-income, first-generation college students had earned a bachelor's degree within six years of enrolling in college, and 26.1 percent had earned an associate degree or other credential, compared to 54 percent of non-low-income, non-first-generation students.[4]

First-generation college students are faced with a set of unique challenges. Without prior knowledge about the process, applying for college and financial aid – exacerbated due to a lack of awareness around the FAFSA – can be difficult and confusing. These students also often feel obliged to find a job to help support their families following high school graduation, in order to alleviate the economic hardship that many families face. Often times, first-gen students have never set foot on a college campus, making the experience that much more foreign – and difficult – for them. First-generation students also routinely enter college without having had access to the type of rigorous high school curriculum that are proven to better prepare students for postsecondary success. As a result, many students are not prepared for the academic rigor of postsecondary education.

High schools need to step up to prepare first-generation students for a successful transition to college. Successful strategies they can implement to do this include providing students with more counseling and information regarding the financial aid process, the FAFSA, and what colleges offer the best fit for the student; exposing high school students to college campuses prior to graduation; and ensuring that first-gen students have access to rigorous high school, college-prep courses. Schools should also offer waivers to low-income, first-gen students so that they can afford to take the SAT or ACT, as well as AP classes.

As more first-generation students graduate high school, it is imperative that they are equipped with the tools and resources they need for postsecondary success. Postsecondary institutions are doing just that. Georgia State University is one such example with their creation of an in-depth guide for first-generation students that offers resources for every aspect of the transition to college. This includes advice on finding the right school, applying and preparing for a student's first year, and offers tips from former first-gen students.[5] Brown University created the First-Generation College Student Program that links first-generation students with student leaders and coordinators who hold information sessions, mentorship events, and other programming.[6] Former first-generation Ivy League students came together to create the Inter-Ivy, First-Generation College Student Network that works to improve Ivy League campuses for first-generation college students. In addition, organizations like *I'm First* offer first-generation college students online communities where they can receive guidance from former first-gen students on topics ranging from applying for financial aid to the colleges that best support first-generation students.[7]

1 National Center for Education Statistics (2011). Beginning Postsecondary Students Longitudinal Study, 2004-2009. Washington, DC: U.S. Department of Education.

2 Nicole Smith (2013). First Generation College Students [PowerPoint slides]. Washington, DC: McCourt School of Public Policy. Retrieved from http://www.cic.edu/meetings-and-events/Leadership-Development/Documents/ELA-resources/First%20Generation%20College%20Students.pdf.

3 Engle, J. & Tinto, J. (2008). Moving Beyond Access: College Success for Low-income, First-Generation Students. Washington, DC: The Pell Institute.

4 Pell Institute (2011). Fact Sheet: 6-Year Degree Attainment Rates for Students Enrolled in a Post-Secondary Institution. Washington, DC: Pell Institute. Retrieved from http://www.pellinstitute.org/downloads/fact_sheets-6-Year_DAR_for_Students_Post-Secondary_Institution_121411.pdf.

5 Georgia State University's Guide for First-Generation Students. Retrieved from http://firstgen.gsu.edu/.

6 About Brown's First-Generation and Low-Income Center. Retrieved from https://www.brown.edu/campus-life/support/first-generation-students/about.

7 Overview: I'm First. Retrieved from http://www.imfirst.org/#overview.

PART II

Roadmap for Postsecondary Success

In this section, we look at what it will take to keep the nation moving in the right direction and make postsecondary attainment – whether a four-year or two-year degree or a high-quality certificate – a reality for all students. First, we examine common readiness indicators and their history and usefulness. Second, we lay out our findings on the best predictor of college success – high school GPA – to focus on what matters the most in getting off-track students ready for postsecondary. And lastly, we present recommendations to address the most pressing challenges remaining on the path to greater educational attainment.

Reframing Readiness

To continue increasing in postsecondary attainment for the next generation of students, we must first make sure we are focusing on what matters in improving readiness. As of now, the larger readiness conversation has been driven by the premise that raising test scores and lowering remediation rates will translate into greater numbers of students successfully enrolling in college and graduating with postsecondary credentials. The attention on these indicators is not wholly undue; however, it significantly overshadows much of what is understood about the knowledge, skills, and supports students need to succeed in both K-12 and postsecondary. Meeting our nation's attainment goals and getting more students to and through postsecondary will therefore require a broadening of our means of measuring readiness and an understanding of the programs, practices, and policies intended to improve readiness and strengthen the K-12 to postsecondary transition.

Concerns over the college readiness of recent high school graduates are primarily driven by interpretations of flat standardized test scores, or low outcomes on college readiness markers derived from them, and high college remediation rates. While these concerns have merit, the evidence being used to underpin them holds less weight. In this next section, we analyze the evidence to provide a more nuanced examination of the metrics currently defining postsecondary readiness and move toward a more balanced and evidence-based understanding of what readiness means.

College Readiness Defined by High School Course Taking

Readiness is not a new concept in education. The notion that high schools should prepare students for postsecondary pursuits has consistently been a part of educational improvement efforts for more than a century. Since the late 1800s, debates have raged on over the number and type of required high school courses students should take and whether all students needed to follow a standard college prep curriculum. These debates have been renewed yet again over the past 35 years, leading to a focus on defining college readiness through the number and types of academic courses high school students take.

In the 1983 report, *A Nation at Risk*, the National Commission on Excellence in Education found inadequacies in the high school curriculum and level of knowledge, abilities, and skills high school and college graduates possessed. The report recommended strengthening high school graduation requirements and proposed that all students seeking a diploma take a "New Basics" curriculum: four years of English, three years of math, three years of social studies, three years of science, one half-year of computer science, and for the college-bound, two years of foreign language.[13] Eleven years later, the Goals 2000: Educate America Act and the subsequent Elementary and Secondary Education Act reauthorization, Improving America's Schools Act of 1994, outlined similar curriculum requirements, calling for students leaving grades four, eight and 12 to have mastered challenging subjects, including English, math, science, foreign languages, civics and government, economics, art, history, and geography.[14,15]

TABLE 6. Course Taking Patterns of High School Graduates by Demographic Subgroup 2013

	Asian	African American	Hispanic	White	Low SES	Middle SES	High SES	Male	Female
>=24 Credits	80.4%	75.4%	70.1%	81.4%	70.4%	77.3%	84.2%	75.6%	79.3%
College Prep or Core Academic Curriculum*	75.6%	71.7%	64.4%	72.2%	64.9%	70.0%	76.1%	67.8%	72.8%

* - Core Academic Curriculum is 4E+3SS+3SC+3M; College Prep Curriculum is 4E+3SS+3SC+3M+2FL

Source: NCES High School Longitudinal Study of 2009 (HSLS:09)

Since then, ensuring students leave high school "college and career ready" by taking the right courses in high school has been at the center of state and federal education policy. Clifford Adelman, using data from the U.S. Department of Education's National Education Longitudinal Survey (NELS: 88/2000), produced a series of influential analyses that were seen as providing an evidentiary basis for linking college readiness to course taking. In *Answers in the Toolbox: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment* in 1999 and later, with *The Toolbox Revisited* in 2006, Adelman found the factor best associated with the students who enrolled in and completed college was the "quality and intensity of high school curriculum," indicated by the number of credit hours they earned in core courses in English, math, social studies, the sciences, foreign languages, computer sciences, and other courses.[16] Further, Adelman noted that the highest level of math class passed, and in particular Algebra II, was a key indicator of college outcomes, though he also noted that mastery in reading and writing were critical indicators of college readiness.

In 2001, Achieve, Inc. began the *American Diploma Project* to develop standards comprising both college and workforce readiness. The project examined labor market conditions to determine the academic knowledge and skills needed for the most promising jobs and surveyed employers about the skills they look for in new hires. The resulting benchmarks were released in the 2004 *Ready or Not: Creating a High School Diploma that Counts*, and led to an effort to enlist states in further increasing the number and types of academic courses, specifically in math and science, required for high school graduation.[17]

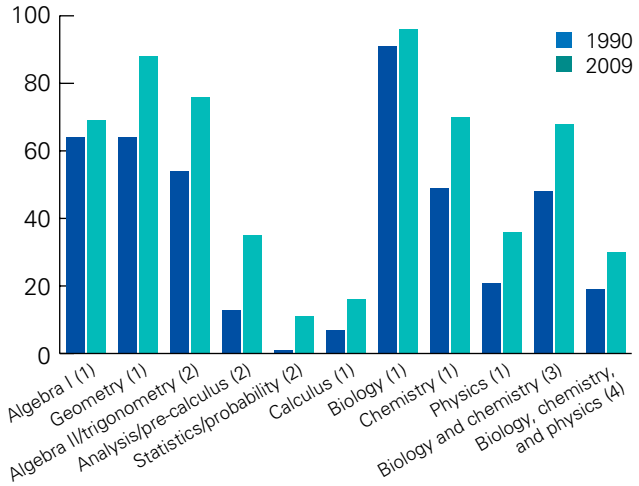
In the mid-2000s, the University of California (UC) and California State University System (CSU) put in place a requirement that students complete a series of 15 high school courses known as "a-g" as the first step in the admission process. The universities specified that these courses be "academically challenging, involving substantial reading, writing, problems and laboratory work (as appropriate), and show serious attention to analytical thinking, factual content and developing students' oral and listening skills."[18] The a-g requirements are not a diploma, though some districts within the state have adopted the course sequence as their standard for graduation. Rather, it was intended to give higher education a tool to more accurately assess if a student will arrive on campus prepared to take on the workload and challenges of a college curriculum.[8] In addition, the requirements also help high schools ensure that they are providing students with courses that are sufficiently rigorous, and are in alignment with the requirements of higher education institutions in the state.

Efforts to increase the academic focus of high school course taking, link it to college readiness, and increase the number of high school graduates who take both the core academic curriculum first outlined in *A Nation at Risk*, and the more advanced science and mathematics courses promoted by Adelman's analysis and Achieve, have had major impacts. Significantly greater numbers of high school graduates today complete a core college prep curriculum and take advanced science and mathematics courses than a generation ago.

Recent data from the 2009 High School Longitudinal Survey, presented in Table 6, show two important findings. First, even with the progress made in the last 20 years, about 30 percent of high school graduates

8 It should be noted that some districts are lowering their standards for achieving a-g, and there have been other concerns raised around districts using these requirements as the standard for graduation.

FIGURE 3. Percentage of high school graduates who completed selected mathematics and science courses in high school: 1990 and 2009



(1) Percentages are for students who earned at least one Carnegie credit.

(2) Percentages are for students who earned at least one-half of a Carnegie credit.

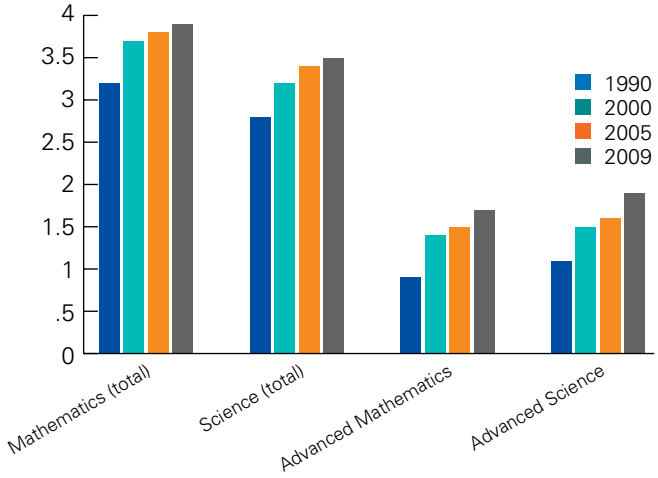
(3) Percentages are for students who earned at least one Carnegie credit each in biology and chemistry.

(4) Percentages are for students who earned at least one Carnegie credit each in biology, chemistry, and physics.

NOTE: For a transcript to be included in the analyses, the graduate had to receive either a standard or honors diploma.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Transcript Study (HSTS), 1990 and 2009. See Digest of Education Statistics 2013, table 225.40.

FIGURE 4. Average total and advanced mathematics and science credits earned by high school graduates: Selected years, 1990–2009



NOTES: "Advanced mathematics" courses include algebra II, trigonometry, statistics/probability, precalculus/analysis, calculus, and any AP/IB mathematics courses. â œAdvanced scienceâ courses include advanced biology, chemistry, physics, advanced environmental/earth science, engineering, and any AP/IB science courses.

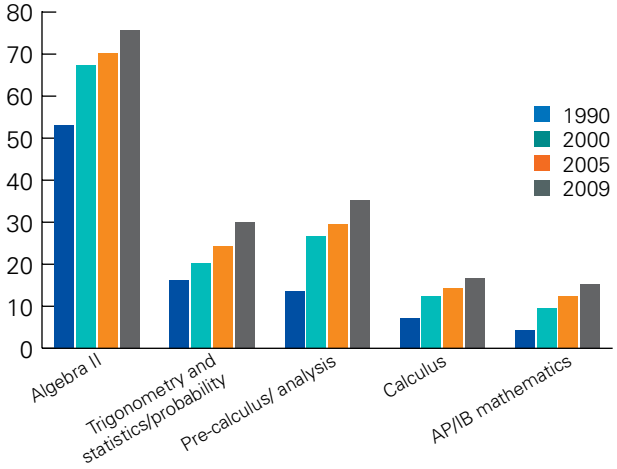
SOURCES: Nord C, Roey S, Perkins R, Lyons M, Lemanski N, Brown J, Schuknecht J, America's High School Graduates: Results of the 2009 NAEP High School Transcript Study, NCES 2011-462 (2011); National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of National Assessment of Educational Progress 1990, 2000, 2005, and 2009 High School Transcript Studies, National Center for Education Statistics.

have not completed the core curriculum first outlined in *A Nation at Risk* and more recently advanced by ACT. Second, while gaps remain and there are too many high-minority and high-poverty high schools where students still do not have access to advanced classes, there has also been significant progress in closing opportunity gaps with regards to academic core course taking between genders, racial/ethnic groups and low-income and upper-income students. For example, equal percentages of White and Black high school graduates completed either a core academic or college prep sequence of high school courses. While gaps remain among low-income and higher-income students and men and women, they are considerably smaller than in other academic outcomes.

Similar trends can also be seen in student participation in AP courses that are designed to require college level work. In 2002-03, more than one million students participated in the AP program, and roughly 15,000 schools nationwide offered AP exams. A decade later, participation in AP courses increased to more than 2.2 million students and AP exams were offered in nearly 19,000 schools.[19] In 2003, there were roughly 514,000 total AP examinees, and 65 percent (331,734) of students who took an AP exam scored a three or higher.[20] In 2013, the number of students taking the AP exam nearly doubled (1,003,430), and 61 percent of students scored a three or higher.

From the Class of 2003 to the Class of 2013, the number of low-income examinees jumped from approximately 58,000 to nearly 276,000 students. Thus, as the percent of low-income students taking AP exams rose from 11 percent to 27 percent, the percent of all students scoring a three or higher declined by just four percentage points. This tells us that significantly more low-income students are now taking and passing AP exams than were a decade ago. During this time, it is also important to note that the College Board worked to ensure quality control by requiring external approval of course syllabuses in order for a course to be labeled AP and required teachers of AP courses to participate in professional development.

FIGURE 5. High school graduates completing various advanced mathematics courses, by subject: Selected years, 1990-2009 Percent

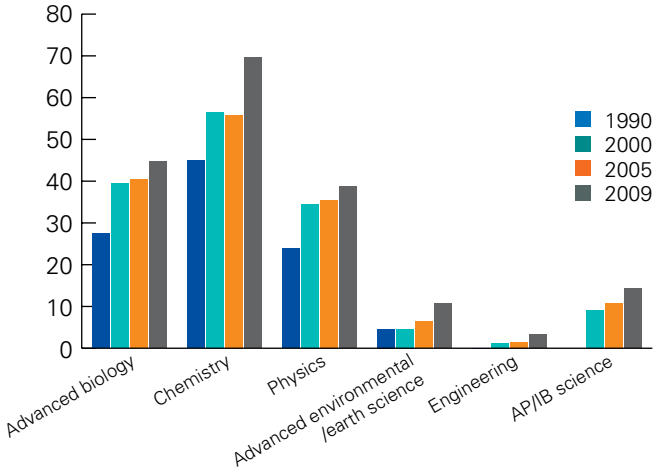


AP = Advanced Placement; IB = International Baccalaureate

NOTE: AP/IB courses are shown separately here but also could be included in other bars. For example, calculus includes any calculus course, including AP calculus.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of National Assessment of Educational Progress 1990, 2000, 2005, and 2009 High School Transcript Studies, National Center for Education Statistics.

FIGURE 6. High school graduates completing various advanced science and engineering courses, by subject: Selected years, 1990–2009 Percent



AP = Advanced Placement; IB = International Baccalaureate

NOTES: "Advanced biology" includes AP/IB biology, physiology, anatomy, and genetics. "Advanced environmental and earth sciences" includes AP/IB environmental sciences, college preparatory earth science, and various geology courses. AP/IB courses are shown separately here but also included in other bars. For example, "Physics" includes any advanced physics course, including AP physics, and "Chemistry" includes any advanced chemistry course, including AP chemistry.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of National Assessment of Educational Progress 1990, 2000, 2005, and 2009 High School Transcript Studies, National Center for Education Statistics.

When the college readiness of recent high school graduates is examined from the lens of high school course taking, the conclusion is clear: a greater percentage of today's graduates, including low-income students and students of color, are more prepared for college than those from a generation ago. Thus, by this college ready metric, as high school graduation rates have increased, so has college readiness. That said, the data also indicate that substantial numbers of high school students are graduating without having completed a core college prep curriculum or taken accelerated classes in high school.

Recently, some states have passed legislation creating alternative pathways to high school diplomas that do not require the high levels of mathematics and science courses promoted by Achieve and others. There is also considerable variation among states in the courses and credits that are required for high school graduation. By and large, however, the core academic curriculum first identified in *A Nation at Risk* has been codified as standard practice across many states. Moreover, as of the 2015-16 school year, 43 states have adopted and maintained their commitment to the Common Core State Standards (CCSS) as their chosen college and career ready standards, although several repeal efforts have been undertaken within the past two years.[21] Adoption of the Common Core, combined with the core academic curriculum that is the norm in most states and continued growth of AP courses and dual enrollment, would ensure that future high school graduates continue the current growth in college readiness, as defined by high school course taking.

College Readiness Defined by Test Scores

Critics of high school course taking as a metric of college readiness argue that simply providing a course, or perhaps even just a course title, does not mean that students are learning the knowledge and acquiring the skills needed for success in postsecondary institutions. As a result, there has been a continual quest to find standardized tests and metrics that capture the skills and knowledge students' need for postsecondary success.

In the last decade, both ACT and College Board, for example, have established threshold scores on their exams that they argue predict college readiness. With growing numbers of states adopting the ACT or the SAT as their high school accountability measure for student achievement under ESSA, the ACT and SAT college ready benchmarks are poised to take on even greater significance.

Similarly, the National Assessment Governing Board has been studying the use of their 12th grade National Assessment of Educational Progress (NAEP) exam as a measure of students' academic preparedness for college since 2004. The results of this research "indicate that students scoring at or above 163 on the NAEP mathematics scale, and students scoring at or above 302 on the NAEP reading scale are likely to possess the knowledge, skills, and abilities in those subjects that would make them academically prepared."[22] The National Assessment Governing Board carefully defines these cut scores as a measure of "academic preparedness" for college – and not as a measure of postsecondary success.

Following the lead of ACT, SAT, and NAEP, other standardized test makers are correlating threshold scores on their tests to predictions of college readiness. It is now possible, for example, to get school level reports that aim to show what percent of sixth graders are on track to being college ready for different tiers of postsecondary options, from community colleges, to open access four-year schools, and more selective institutions. What is less often conveyed is research done by ACT and others, which shows that course grades and academic behaviors (what others have called social and emotional skills), have as much influence on future high school and postsecondary outcomes as test scores.[23] Thus, in evaluating current trends on test-based metrics of college readiness, it is important to keep their limitations in mind.

Current Performance Trends on NAEP, ACT, and SAT

Overall NAEP, ACT, and SAT tests scores have stayed about the same in recent years. Between 2002 and 2015, NAEP 12th grade reading scores showed no significant difference, and 12th grade math scores rose by two points.[24] The number of students meeting the ACT College Readiness Benchmarks has likewise remained constant.[25] On average between 2011 and 2016, about 40 percent of ACT test-takers met three or four benchmarks, while about 30 percent did not meet any of the benchmarks. The composite score has averaged around 21 on a 36-point scale since 2000.[26] Similarly, the percentage of students meeting the SAT College and Career Ready Benchmarks has decreased by roughly one point since 2009.[27]

While the scores have remained basically constant, the pool of test takers has become more diverse and less advantaged. The schools and students who are part of the national NAEP assessments are selected to be representative of the nation's student population, and therefore, both the sample and the exam scores are reflective of shifting demographics. Changes in the student population and the push to replace state graduation exams with the ACT or SAT have also led to a wider base of students taking these tests in recent years. College Board reported 50,000 more test-takers and increasing shares of "underrepresented minority students" and test-takers using the exam fee waiver in 2015 than in 2011.[28] The number of Hispanic/Latino and Black students taking the ACT increased 44 percent and 23 percent, respectively, between 2012 and 2016.[29]

Some have used stagnation in 12th grade NAEP, ACT, and SAT scores as evidence to argue that while high school graduation rates are rising, college readiness is not advancing, and as a result, current high school diplomas may have less value than in the past. This is a misconception. What the data show are that as more students are graduating from high school rather than dropping out, and more low-income students and students of color, in particular, are graduating from high school and enrolling in college, their level of readiness has remained on par with earlier generations that were less diverse and more advantaged.

Where it gets complicated is that two seemingly contradictory things are true at the same time. It is true that many students are graduating high school and by test score measures are not ready for college, and that more students than ever are graduating college ready based on test scores. In the first case, we are looking at levels and seeing that only 40 percent or so of high school graduates have standardized test scores that predict success in four-year colleges. In the second case, we are looking at trends

and seeing that greater numbers of students are graduating from high school and achieving similar levels of test-measured college readiness as earlier cohorts. As a result, the absolute number of students graduating from high school college-ready as measured by test scores is increasing. Perhaps the simplest way to see it is this: if 70 percent of students graduate from high school and 40 percent are college ready based on test scores, then 28 percent of 18-year-olds are by this definition college ready, whereas if 80 percent of students are graduating and 40 percent are college ready based on test scores, then 32 percent of 18-year-olds are college ready – a marked difference.

College Readiness Defined by College Remediation Rates

A different way to consider college readiness is to examine the extent to which postsecondary institutions believe they need to offer non-credit bearing remediation courses, typically in mathematics and English, to students who enroll in their institutions. Although no national statistics are collected on college remediation rates, it is estimated that between 28 and 40 percent of first-time undergraduates enroll in at least one remedial course. When looking solely at community college students, those estimates soar to above 50 percent. While these statistics are troubling, they fail to tell the complete story of how prepared high school students are to enter postsecondary.

For example, the estimates do not differentiate between students who enter immediately following high school and those who return to school as adults – a factor that may be increasing remediation rates, especially for community colleges. It is also important to note that students are typically placed in remedial courses on the basis of one of two standardized placement exams – the COMPASS or the ACCUPLACER. These two tests, offered by ACT, Inc. and College Board, respectively, are heavily relied upon to determine which students need remedial coursework, but a 2012 study by the Community College Research Center (CCRC) at Columbia University's Teachers College found that neither test was a strong predictor of how students would fare in college-level classes. The CCRC researchers also found that up to one-third of students deemed to need remediation by these tests could have passed college-level courses with a B or higher grade.[30] Additionally, a 2016 randomized control trial conducted by researchers at The City University of New York found that when students assessed as needing remediation in math were assigned to a college-level statistics course instead of remedial Algebra, they passed at a rate 16 percentage points higher than students who were placed into the remedial course.[31] Thus, it is very difficult to interpret the extent to which remediation rates provide an accurate estimate of college readiness.

While it is evident that some students are entering postsecondary institutions not fully ready to succeed, it is also likely that the "published" college remediation rates conflate students entering college right after high school with those returning years later, and that not all students whose placement scores suggest a need for remediation are in need of it to succeed in college level courses. Given these facts and the impossibility of getting any consistent measure over time, published college remediation rates may be informative in local contexts, but cannot serve as a national indicator of how college ready succeeding waves of high school graduates actually are. Additionally, the current system of measuring and addressing remedial needs in our postsecondary institutions is undermining persistence and serving as a barrier instead of a gateway to greater college success.

The Numbers That May Matter the Most: College Readiness Defined by High School Grades

Based on our research and the work of others, the best existing predictor of college success is a student's high school grade point average (GPA). High school GPA is seen by some as an unreliable indicator of readiness because of variance in grading standards across high schools and the possibility of grade inflation; however, recent longitudinal surveys (ELS: 2002 and HSLS: 2009) show that, between 2004 and 2013, GPA's of high school graduates actually declined slightly from 2.9 to 2.8, closely tracking changes in test scores. This finding is reinforced by an ACT study that found little evidence of grade inflation between 2004 and 2011 after numerous studies showed strong evidence of inflation in preceding years.[32] Despite the concerns around grade inflation and variance, high school GPA continues to be the top factor in college admission decisions, and several studies have found that the grades students receive in high school

better predict both high school outcomes and college performance than standardized tests:

- A 2003 study of students admitted to the University of California (UC) found that high school GPA in college-preparatory courses was the best predictor of first-year college grades, a measure that is highly correlated with postsecondary outcomes.[33] A later study examining predictors of four-year outcomes at UC found that high school GPA was consistently the strongest predictor of four-year college outcomes for all academic disciplines, campuses, and freshman cohorts in the sample, and that the predictive weight associated with high school GPA increased after the freshman year.[34] The 2007 report also found that using high school GPA as an admissions criterion had a less adverse impact on disadvantaged and underrepresented minority students than standardized tests.
- In a 2009 study, Bowen et al. found that when controlling for high school quality, students with very good grades graduating from weak high schools still graduated in large numbers from college, while students with poor grades in high school, regardless of the quality of their high school, had much lower high school graduation rates.[35]
- A 2014 study examining optional standardized testing policies at 33 public and private colleges and universities reviewed the records of 123,000 students and alumni and found that despite wide variations in reported test scores, high school GPA closely tracked with college and university cumulative GPA.[36] Students with strong high school GPAs, even those with low to modest test scores, generally performed well in college, while those with weak high school GPAs who scored well on standardized tests had lower college GPAs.
- A 2015 study found that using GPA and the number of English and math course units as the sole measure of college readiness would result in fewer misplacements into college-level and remedial courses and higher success rates in college-level courses.[37]
- A 2016 study of four-year college students placed in developmental (i.e., remedial) courses found that 60 percent of students who instead enrolled directly in college-level English or math courses passed them, and that among these students, high school GPA was a stronger predictor of performance in college courses than SAT, ACT, or ACCUPLACER.[38]
- Even research by ACT, Inc. and College Board indicates that high school GPA is more highly correlated with first-year college GPA than either ACT or SAT exam scores alone.[39,40] Both ACT, Inc. and College Board recommend using GPA alongside their exams in determining college preparedness because of its predictability strength.

Data from the High School Longitudinal Study of 2009 (HSLS:09), which looked at the high school transcripts of Fall 2009 ninth graders in 2013, provides further evidence for high school GPA as a reliable predictor of which students enroll in postsecondary. Ninety-seven percent of students graduating with an A average and 85 percent of those graduating with a B average enrolled in a postsecondary institution immediately after high school graduation, compared to 55 percent of students with a C average and just 23 percent of those with a D or F average. Of the students earning an A average, 89 percent enrolled in a four-year college, while just eight percent enrolled in a two-year college. Students with a B average also enrolled at higher rates in four-year colleges – 61 percent versus 25 percent in two-year colleges – while students with a C average or less were more likely to enroll in two-year institutions.

High GPAs Transcend Racial, Ethnic, and Income Differences

High GPAs, more than any other academic measure, transcend racial, ethnic, and income differences in outcomes. With the exception of Native American students, 90 percent or more of students of every other racial/ethnic background with an A average enrolled in a two-year or four-year institution of higher education. The same was true for students of varying income levels. High-income and low-income students with A averages enrolled in postsecondary schooling at similarly high rates. Students with a B average, across races/ethnicities, gender, and socioeconomic levels, also enrolled in postsecondary at significant rates, though divisions between high-income and low-income students become more pronounced. More than 80 percent of students of all races and ethnicities earning a B average and 70 percent or more of students from all income levels enrolled in postsecondary. The gap between low-income and high-income students enrolling in postsecondary, however, was greater than 20 percentage points.

Although the consistency of higher GPAs leading to postsecondary enrollment across demographic lines is positive, what is troubling is the small numbers of

TABLE 7. GPA of HS Graduates by Demographic Background, Class of 2013

	Asian	African American	Hispanic	White	Low SES	Middle SES	High SES	Male	Female
GPA - D/F	1.5%	14.8%	9.2%	3.9%	13.1%	6.6%	1.8%	9.2%	4.5%
GPA - C	18.5%	50.6%	48.1%	29.3%	47.0%	40.0%	18.9%	41.1%	32.6%
GPA - A/B	80.0%	34.5%	42.7%	66.8%	39.9%	53.4%	79.2%	49.7%	62.9%

Source: NCES High School Longitudinal Study of 2009 (HSLS:09)

students from traditionally underrepresented groups earning higher GPAs. As seen in Table 7, while two-thirds of White high school graduates in the HSLS:2009 survey reported a GPA of a B or higher, only one-third of Black students and less than half of Hispanic/Latino students reported being in the higher GPA range. Similarly, nearly 80 percent of high-income students reported a GPA of a B or higher, but just 40 percent of low-income students earned a B or higher GPA.

While it is significant that a strong correlation exists between high school GPA and college enrollment, for high school grades to be viewed as a strong measure of college readiness and predictor of college success, we need evidence linking GPA to college persistence and degree attainment. Such evidence is provided by an earlier longitudinal survey, NCES's Educational Longitudinal Study of 2002 (ELS:2002), which provides this data for 2002 high school sophomores and shows strong correlations between high school GPA and educational attainment.

More than 76 percent of students with a 3.5 GPA or higher (A) and 50 percent of students with a 3.0 to 3.49 GPA (B) in high school had earned a bachelor's degree or higher by 2013. Just 27.6 percent of students with a 2.5 to 2.99 GPA (C), 12.4 percent of students with a 2.0 to 2.49 GPA (D), and 3.3 percent of students with a GPA less than 2.0 (F) earned a bachelor's degree or higher in this time period. Students with a 3.5 GPA or higher were 13 times more likely to have earned a bachelor's degree or higher than to have earned an associate degree. A mere 1.6 percent had attained no more than a high school diploma or equivalent and roughly three percent held undergraduate certificates but no degrees. Similarly, five times as many students with a B average (3.0 to 3.49 GPA) earned a bachelor's degree than an associate degree, and though the percentage of B students earning just a high school diploma or equivalent or an undergraduate certificate was higher than for A students, it was still far lower than for students with lower GPAs. Students with a 2.99 GPA or lower (C or below) were much less likely to have earned a degree, but more likely to have earned an undergraduate certificate or stopped after earning a high school diploma or equivalent.

TABLE 8. Cumulative High School GPAs – Classes of 2004 & 2013 (ELS:02 & HSLS:09)

	Class of 2004	Class 2013
Overall – GPA	2.9	2.8
Academic Courses – GPA	2.7	2.7
Overall - % of Students with High School GPA of "B" (3.0) or Higher	46.9%	55.2%
Academic Courses - % of Students with High School GPA of "B" (3.0) or Higher	40.1%	47.1%

Finally, comparing GPA outcomes of high school graduates on the 2009 longitudinal survey versus those on the 2002 longitudinal survey (Table 8) shows that as more students have graduated from high school, overall GPA's have remained about the same. Like test scores, this indicates that more students than ever are

graduating college ready. There appears to have been a small increase in the percent of students earning a B or better average, which suggests a potential rise in college readiness. This is counter-balanced by the fact that, for the percent of students earning a B average to rise while overall GPA remains largely constant, there was also likely a slight increase in students graduating with a low C or D average.

What High School GPA Tells Us That Other Indicators Cannot

High school GPA, unlike indicators relying on one-time test scores, provides a more complete picture of a young person's education and the skills and competencies they have developed that enable them to successfully navigate school. Bowen et al. argue that high school grades reveal skills – good study habits and time management, perseverance, motivation– that go well beyond a simple mastery of content. And having these skills is a critical part of readiness as defined by David Conley's Four Keys to College and Career Readiness.

High school GPA has also been found to be a less discriminatory metric than standardized test scores. In their study of University of California students, Geiser and Santelices discovered that high school GPA was only weakly correlated with family income and parents' education, while SAT scores bore a strong, positive relationship to those measures. Focusing more on student GPA and less on standardized test scores when determining readiness may be key, therefore, in ensuring greater equity on the pathway to postsecondary education.

Conclusion

As the nation moves toward making postsecondary attainment the norm among young adults, we will need to develop more holistic indicators of college readiness. Evidence suggests that students must have not only the necessary academic skills but also the know-how to succeed in college, and the motivations to do so.

David Conley was among the first to detail these intersecting components of college readiness, which he defined as cognitive strategies, content knowledge, learning/study skills and navigation to college skills. Along with the work of the Chicago Consortium and others, he helped to add needed nuance to the college ready debate.

Recently, a number of school districts collectively attempted to develop a set of college readiness indicators as part of the CRIS project. They concluded that college readiness was best defined by academic preparedness, academic tenacity, and college knowledge, and that students needed opportunities and supports to achieve these at the classroom, school and district/systems level. In this conception, college readiness looks at both individual level outcome and system level provisions.

We need to build on this work, as well as capitalize on the spread of early warning systems (a recent survey shows half of high schools reporting they have some version of these systems) to enable close tracking of the range of academic and social emotional skills, competencies and mindsets students need to thrive in college and provide timely and tailored supports to ensure all students stay on the path to college readiness. By broadening our understanding of what needs to be included in high quality readiness metrics, we can more accurately identify students who are not prepared for postsecondary and better understand where they are falling off track and what it will take to get them back on.

TACKLING THE CHALLENGES THAT REMAIN

To achieve our national goals for postsecondary attainment and to continue closing opportunity gaps, beyond redefining readiness, using and spreading the student supports that work, and fostering and learning from state innovations, we as a nation will need to address head on the most pressing challenges that remain. These challenges will test us, as many will not be solved without fundamental reforms that disrupt the status quo. But if we are serious about using educational advancement as means of upward mobility for all, we must work together to find innovative, effective solutions that produce positive results for all student demographics.

1. Continue raising high school graduation rates.

The first step in ensuring that today's K-12 students continue to see increased postsecondary attainment and closing opportunity gaps is to ensure that high school graduation rates continue to rise across all sub-groups. To reach a 90 percent on-time graduation rate for all students, the nation will need to graduate about 300,000 more students per year, the equivalent of three Rose Bowls of students. Nearly all of the students will be low-income students, minority students, students with disabilities, and English Language Learners. The challenge is compounded by the fact that many of these students are concentrated in a sub-set of schools not designed to help them with the education hurdles they face. This means the nation will need to find ways to support and successfully educate the students for whom the current education system is not working. The work required will be made more difficult by the fact that many of these schools are located in economically and socially isolated neighborhoods and communities. Thus, new school designs and stronger, widespread use of early indicator and intervention/response systems, and more supported pathways through high school and onto postsecondary, will be needed in locales that are financially, economically, environmentally, and socially stressed.

To help today's students succeed, we must think collaboratively about how both higher education and K-12 will need to change and adapt to serve new demographics of students. This means giving students opportunities to experience college-level work in high school so they can practice for college while still in the more supportive high school environment. It means ensuring that students have consistent and early exposure to information about higher education options available to them, and the milestones they will need to achieve in high school in order to get on the path that is right for them. And it may include intensive mentoring on the part of schools and communities to guide students through the process of preparing for and entering postsecondary work, particularly if their families do not have the knowledge and experience themselves. This can be in the form of school counselors, and formal and informal mentors within their community. All of these pieces have critical roles to play in ensuring that students receive the right supports in high school that will allow them to arrive in the college classroom prepared to take their next steps.

2. Take a more holistic approach to college readiness metrics.

Questions have been raised over whether standardized exams in high school and those leading to placement in remedial courses serve as a barrier to students enrolling and persisting in college – especially for students of color and economically disadvantaged students. These tests act as both formal and informal sorting mechanisms, and more attention needs to be placed on how they might be deterring students from

believing they have what it takes to succeed in college. Both College Board and ACT have created fee waivers to make it easier for low-income students to take their exams and many states have adopted universal testing policies to ensure all students have access to taking one of the major college entrance exams, but higher-income students still have greater access to test prep materials and courses that give them a decided advantage. For students who are placed into remedial courses based on standardized placement tests despite having passing grades in prerequisite high school coursework, this placement is often seen as a sign that they are not "college material."

With strong evidence showing that high school GPA is the strongest predictor of postsecondary enrollment, persistence and attainment – the metric that transcends racial, ethnic, gender and income differences, and a measure of the "soft skills" that make students successful – greater weight needs to be given to a more holistic view of what makes a young person ready for postsecondary. This means paying more attention to the classes students take throughout high school and how they perform in higher-level coursework, instead of focusing too heavily on standardized test scores.

With previously underrepresented students now making up the majority of students in this country and some postsecondary education becoming the norm for future career success, it is more important than ever that these students be presented with opportunities, not roadblocks, on the path to college, and concerns over any metric that may serve as a barrier must be adequately addressed.

Ultimately, what is needed is a more holistic set of college readiness markers that uses increasingly available longitudinal data to empirically connect K-12 schooling, life experiences, and accomplishments, to postsecondary degree attainment. These then must become the opportunities we provide to all students, and will indicate where it will be most important to provide additional supports.

3. Improving readiness among students.

Current data is clear: about 35 percent of students are either not graduating from high school on-time, or are graduating but not immediately enrolling in postsecondary institutions and do not appear ready to do so.

For the 25- to 34-year-olds of 2035 to see higher levels of educational attainment than those before them, and for the nation to continue to close its opportunity gaps, it is among this cohort that large gains in college readiness will need to be achieved. They must leave high school with the knowledge, skills, and abilities that will enable them to make informed decisions about postsecondary and thrive in college-level courses.

These efforts should be twofold. First, at the college level, there is an expectation of higher order thinking skills, which requires critical reading and analysis with thoughtful expression both orally and in writing. By not preparing students with these skills in K-12, a chasm is created between students' beliefs about their level of readiness and what colleges expect of them. Though academic content is clearly a significant part of a high-quality learning experience, K-12 education needs to place greater emphasis on cultivating the skills that will take students into college prepared for higher-level coursework. At its heart, this is what the common core and now state-level college and career readiness standards aim to do. The challenge for the nation, however, is to first understand, and then find the means, to enable and support students who are currently failing high school courses, or passing them with Ds and Cs. These students must be encouraged to not only do better in their current courses, but to do well in challenging courses linked to postsecondary expectations. Numerous states have shown that it is possible to raise standards and graduation rates at the same time. But to continue to raise postsecondary outcomes, we will need to do the hard work of making success in school the norm. This will not only require a deeper understanding of complex learners, an artful applications of advances in the learning sciences, and copious amounts of school leader and teacher training and support, but also a willingness to confront and move beyond the long held view that college is a reward for those who try and succeed in high school, and not the appropriate next step for those who struggle or appear to lack sufficient motivations.

Second, schools need to be focused on creating a "college mindset" as early as elementary or middle school. This needs to include not only fostering a mentality around the importance of postsecondary education in life outcomes, but more importantly, building an understanding of all available postsecondary pathways: what students need to achieve in

high school to make postsecondary a reality, how the application process works, what students should expect when they get onto campus, and how to navigate the pitfalls that can derail students early in college. Many high schools around the country have implemented college success courses, but these programs need to be available to more students and started no later than the ninth grade to have the greatest effect.

4. Address issues of access.

Currently, over 90 percent of students from upper-income families graduate high school, and 84 percent of upper income high school graduates are immediately enrolling in postsecondary institutions. Thus, there is not much room left to raise national postsecondary attainment rates through increasing the outcomes of the better off. Continued progress will have to come from lower-income and middle-class students. Currently, about 58 percent of low-income and 64 percent of middle-income recent high school graduates immediately enroll in higher education institutions.[41] To drive these rates higher, three access bottlenecks will need to be cleared.

The first issue is cost. It is impossible to talk about postsecondary readiness, persistence, and attainment without discussing the rising cost of college and growing levels of student loan debt. The mounting costs of postsecondary pose a significant challenge to students enrolling in and completing college. A 2009 Public Agenda survey found that needing to work and make money and being unable to afford tuition and fees were the top two reasons young adults gave for leaving college early.[42] Yet, according to data collected by the College Board, average tuition, fees, and room and board for public and private four-year colleges increased by 32 and 22 percent, respectively, between 2005-06 and 2015-16. The tuition and fees at public two-year institutions increased by 25 percent over the same time period.[43] State funding for public universities, which is directed toward general operations of public institutions, has been in decline (see sidebar) since 2000. Federal funding, on the other hand, which is primarily used to provide financial assistance and fund specific research projects, has surged in recent years largely due to a spike in Pell Grants.[44] As more lower-income students enter postsecondary, the need for Pell Grants will continue to rise, and it is incumbent that Congress and future administrations increase the maximum award amount to keep pace with inflation. At the state level, policymakers, especially those in states where education cuts were the greatest, need to restore higher education funding to pre-recession levels to ensure more young people can afford to enroll in postsecondary. Additionally, institutions of higher education, states, and the federal government should do more to work together to lower the cost of college and provide adequate support to students.

Second, we need to address the "education deserts" that prevent some students from enrolling in college. In the Internet Age with a wide variety of postsecondary

The Cost of Postsecondary Education

A significant reason for the increased cost of college, specifically for public two- and four-year institutions, is the decline in state higher education funding. A 2015 report by the American Academy of Arts & Sciences found the following:

State support for public higher education has been in decline for more than a decade. Spending per full-time equivalent (FTE) student in 2014 was nearly 30 percent less than in 2000, after adjusting for inflation.

These cuts were particularly harsh following the Great Recession. Between 2008 and 2013, state support at the median public institution was cut by more than 20 percent per FTE student, and at public research institutes, cuts totaled more than 26 percent per FTE student.

All but four states (Illinois, North Dakota, Wyoming, and Alaska) cut support for public higher education per FTE student between 2008 and 2014. During that period, 10 states cut inflation-adjusted public higher education spending by more than 30 percent, 19 states cut support by more than 25 percent, and 36 states cut support by more than 20 percent.

The higher education share of state general fund spending was just 9.4 percent in 2014, down from 14.6 percent in 1990.

The decline in state support has contributed greatly to the rising cost of college and helped create both a significant barrier to students hoping to enroll in higher education and an undue burden on those who carry this weight through college and well beyond.

choices, one might assume that place no longer matters, but for many students who work, care for dependents, and have strong family, social and community ties, place matters a great deal, and some students may not have the option to go to college beyond their home community. Current data show that Latino students and students who live in low educational attainment communities are particularly impacted by education deserts. Yet these are the two groups that have the most room to grow in terms of postsecondary attainments. Policy needs to reflect the realities for many students. This means strong support for community colleges and other institutions that are found in education deserts, and expand four-year higher education options into these areas, rather than assuming a student has options and can move beyond their home location. States and counties should also publicize the regions that are education deserts and form local and state compacts to boost educational opportunity and support in these areas, innovating with local educators, employers, and policymakers to find ways to boost educational outcomes for all students.

Third, despite the increased enrollment of Latino, Black, and low-income students in postsecondary, there are still clear disparities in the types of institutions these students are enrolling in and the availability of high-quality postsecondary options within their communities. As research presented here and elsewhere shows, far too many Black, Latino, and low-income students are not applying to or enrolling in more selective schools where they are more likely to have the support and resources they need. Many students may not apply to these schools because they feel they are not academically capable, do not have the financial means to enroll in more selective institutions, or that they will be "outsiders" on campus, but it is imperative that they be made aware of the benefits of applying to these schools. On the other side, selective colleges need to improve outreach efforts to these students and then provide appropriate support for them once they are on campus.

5. *Identify and address persistence issues.*

Presently, 47 percent of 25- to 34-year-olds have obtained postsecondary degrees, but 65 percent attempted to do so. This means nearly one in five college students is not able to persist to a degree. Thus, postsecondary persistence is the area where some of the greatest gains can be made between the current and future generations. How students perform in their first year of college plays a major role in whether they will persist and ultimately graduate. This is why institutions of higher education need to identify struggling students immediately and get them back on track. Some states, like Florida, have begun taking a two-pronged approach: becoming more proactive in expanding access to comprehensive degree-accelerating strategies (e.g., dual enrollment, AP/IB courses) while students are still in high school, and creating "degree maps" in some of their state universities so that students know from the start what classes they must take for their degree and can avoid taking extraneous courses.[45] In the first 10 years of using the degree maps, Florida State raised graduation rates by 12 percentage points and increased rates for Black, Latino, and lower-income students. Similar increases have also been reported at other universities using degree maps, including Georgia State, where degree maps have increased graduation rates, and lower-income, Black, and Latino students now graduate at higher rates than the overall student body.

Given the myriad challenges many students enrolling in college now face, especially financial issues, colleges must also be willing to accommodate students who must work to support themselves or their families, and provide greater flexibility in course scheduling. Most colleges, particularly four-year institutions, still primarily serve full-time, on-campus students, but that is no longer the reality of today's college student.[46] Colleges must adapt to the needs of the changing student demographic for more of their students to succeed. Postsecondary institutions also need to review their remedial practices to ensure students enrolling in college but lacking in math and reading proficiency are not held back by non-credit remediation courses. These courses lower persistence and attainment rates, and implementing a system based on supporting students in entry-level courses would provide greater benefits to both students and schools.

6. *Provide better information on postsecondary options.*

Data are available today linking course transcripts with wage records, which can tell students, parents and higher education institutions how they are doing in educating students for the demands of work, by field and industry. Bipartisan federal legislation, the Student Right to Know Before You Go Act, has been introduced to innovate around this data pipeline, and other efforts are underway in the states that utilize the data pipeline more effectively. Google has just announced an effort that teams up with the Obama Administration's College Scorecard so that Google's search engine will now display graduation rates, post-college earnings information, and college tuition costs when users search for an individual college. Over time, arming students with better information about relationships between particular programs in higher education and earnings after postsecondary education will enable better choices and may boost the quality of such programs.

CONCLUSION

As postsecondary education continues to grow in importance to boost economic and social opportunity and mobility, so, too, must our understanding of the success sequence from K-12 to postsecondary and into the workforce. The post-*Nation at Risk* cohort, the 25-to 34-year-olds of today, have the highest rates of postsecondary attainment. If high-end certificates are added, they are the first cohort to cross the 50 percent threshold for attaining postsecondary credentials.

But this cohort also saw its opportunity gaps widen. The No Child Left Behind and Race to the Top cohorts (today's high school and college students) are on track to continue propelling educational attainment forward and closing opportunity gaps, given that the gains in high school graduation rates have been greatest among minority and low-income students - the very students targeted by those educational policies. The challenge now is to convert these gains in graduation rates and enrollments into postsecondary degrees.

Finally, today's first to 10th graders (the ESSA cohort) give us cause for concern. To keep postsecondary attainment rates rising and opportunity gaps closing, the nation will need to put sustained resources and effort into resolving some of the biggest remaining challenges. This includes improving the low-graduation-rate high schools that still exist, improving college readiness among students for whom the current educational system is not working well, and solving college access issues, affordability, and persistence among first-generation college students, as well as those from low- and middle-income families.

New and existing research provides insights into the nation's progress in improving this pipeline and the serious challenges that remain. Following the evidence and continuing to test our assumptions will help point the way forward as the nation works to ensure all students from all backgrounds have equal opportunity to pursue a high quality education and realize their dreams.

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