BEST PRACTICES IN CLOSING THE ACHIEVEMENT GAP

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In the following report, Hanover Research presents best practices for closing the graduation rate and college persistence achievement gaps between white and underrepresented minority students.

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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

Nationwide, a multi-year trend of improving graduation rates for underrepresented minority students[1] has stagnated, even as the population of first-generation, low-income, and minority students continues to increase. As a result, many institutions are seeking strategies to increase retention and reduce the achievement gap. The report examines such strategies to assist institutions in closing the achievement gap for these student populations. It includes two sections and an Appendix:

- **Section I: Achievement Gap Trends and Student Risk Factors and Behaviors** examines the long-term national trends relating to graduation rates and achievement gaps. It then provides a taxonomy of student behaviors and risk factors that are negatively associated with college persistence.
- **Section II: Best Practices for Cultivating Minority Student Achievement** presents exemplary program profiles and recent literature on reducing the achievement gaps. Based upon these sources, it highlights high school outreach, student engagement, advising, and learning community strategies that have shown particularly promising results. A final subsection examines the impacts of first-year intervention programs, as well as the difficulty of evaluating these initiatives.
- **Appendix: Institutions with Shrinking Achievement Gaps** provides three lists of institutions that have reduced their achievement gaps and raised their overall graduation rates over the past ten years and explains the methodologies used to select these institutions for potential inclusion in this report.

[1] Defined throughout this report as black, Hispanic, and Native American students.

KEY FINDINGS

- **The Education Trust observes that while underrepresented minority student graduation rates are not improving fast enough to close the gap by the year 2100, individual institutions have implemented policies that dramatically improve student outcomes.** Nationwide, graduation rate improvements among Latino, Native American, and white students have exceeded the average improvement of 5.3 percent between 2003 and 2013, while black students' gains have lagged behind the average with only a 4.4 percent improvement. Some recent research suggests that gains made between 2003 and 2013 have begun to reverse. However, the fact that some institutions continue to achieve strong gains in minority student achievement suggests that more can be done to address educational inequities.
- **Successful retention and achievement supports must be responsive to institutional cultures and local conditions, and effective interventions tend to emphasize student preparation, support, perseverance, learning strategies, and community-building.** University planners should also be mindful that many student behaviors that are risk factors for non-completion—e.g., missing class to work or due to family obligations—are caused or exacerbated by socioeconomic conditions or situations outside the student and the institution's control. Student services must work to both address unproductive student mindsets and behaviors and alleviate their root causes. Some institutions use a "case management" approach to student support where teams of professionals meet students' financial, academic, and social services needs.
- **Institutions that draw a substantial proportion of their students from local high schools have begun working with these schools and their broader communities to prepare students as young as Grade 7 for eventual college success.** Recent research suggests that such interventions may become increasingly necessary, since they enable colleges and universities to prepare potential students long before matriculation. San Diego State University, for example, has implemented successful outreach programs in local schools. They focus on teacher mentoring and preparation and assisting students with academic preparation and the college application process.
- **Research suggests that students who complete at least 15 credits per semester during their first year of enrollment are far less likely to drop out than other students.** With this in mind, San Diego State University has allowed high-potential but underprepared local high school seniors to complete their developmental education requirements over the summer. This allows them to take a full load of credit-bearing courses during their first year. The University also strongly advises entering students to enroll in 15 or more credits per semester. Research does not suggest that developmental education participation is a significant risk factor as long as students make satisfactory progress toward their degree during the first year.

- **Resilience and a sense of social belonging are also very strong predictors of student persistence, so many high-performing institutions seek to welcome students into the campus community.** Colleges and universities have a variety of approaches to improving student engagement, but there is general agreement that students must be reached early in their first semester of enrollment. The State University of New York College at Buffalo has implemented a student engagement, needs, and interests survey which all entering students are encouraged to take. This survey then informs university outreach to students and has help raise retention rates by over four percent.
- **Intensive first-year seminars, learning communities, and advising have also been shown to dramatically improve student retention, though the strategies for implementing successful programs vary and institutions regularly combine strategies like mentoring and first-years seminars.** For instance, a widely-cited 2011 study shows that holistic advisors, or "life coaches," contracted through a third-party student services provider improve retention at client institutions by approximately 4 percent. Other institutions like the University of South Carolina have had similar success with in-house advising programs where advisors seek to build long-term relationships with students. First-year seminars and learning communities should provide rigorous introduction to university-level study and build relationships between entering students, faculty, and mentors. A recent metastudy of these programs found that first-year seminars make participants an average of 1.5 times more likely to persist.

SECTION I: ACHIEVEMENT GAP TRENDS AND STUDENT RISK FACTORS AND BEHAVIORS

This section examines recent trends in graduation rates. It illustrates the broader challenges in college student retention that now face colleges and universities, as well as the persistent concerns about the achievement gap between white and underrepresented minority students. The section goes on to discuss the student behaviors and attributes most commonly identified as indications that a student may be less likely than his or her peers to persist in postsecondary education and ultimately earn a degree.

RECENT TRENDS IN THE POSTSECONDARY ACHIEVEMENT GAP

A November 2015 report by the National Student Clearinghouse Research Center tracks retention and graduation data for students entering postsecondary institutions in 2009. Its major finding is that "the overall national six-year completion rate for the fall 2009 cohort was 52.9 percent," which represents "a decline of 2.1 percentage points from the fall 2008 cohort."

When compared to the differences between the 2007 and 2008 cohorts, the difference between the 2008 and 2009 cohorts is twice as large. In short, the proportion of students who enter postsecondary education and do not graduate within six years is growing at an accelerating rate.[2] Perhaps most disconcerting is the fact that all groups of students attending all types of institutions experienced declines in degree attainment rates, and that the sharpest declines were among full-time students and older students.[3]

The past three years of declining graduation rates are beginning to erode a decade of gains in six-year graduation rates for student cohorts matriculating between 1997 and 2007. A recent report by the Education Trust notes that between 2003 and 2013, the six-year graduation rates for students at public and private nonprofit four-year institutions rose by 4.9 percent and 2.3 percent, respectively. Despite this overall positive trend, the authors observe that graduation rates did not "improve uniformly across the 489 public and 820 private nonprofit institutions we examined."[4]

Furthermore, institutional policies are a deciding factor in rising or falling retention rates among otherwise similar institutions. Among the 328 public universities that improved their graduation rates between 2003 and 2013, 255 had substantial populations of traditionally underrepresented minority students, which include black, Latino, and Native American students.[5]

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[2] Shapiro, D., et. al. "Completing College: A National View of Student Attainment Rates – Fall 2009 Cohort." National Student Clearinghouse Research Center. November 2015. p. 3. https://nscresearchcenter.org/wp-content/uploads/SignatureReport10.pdf

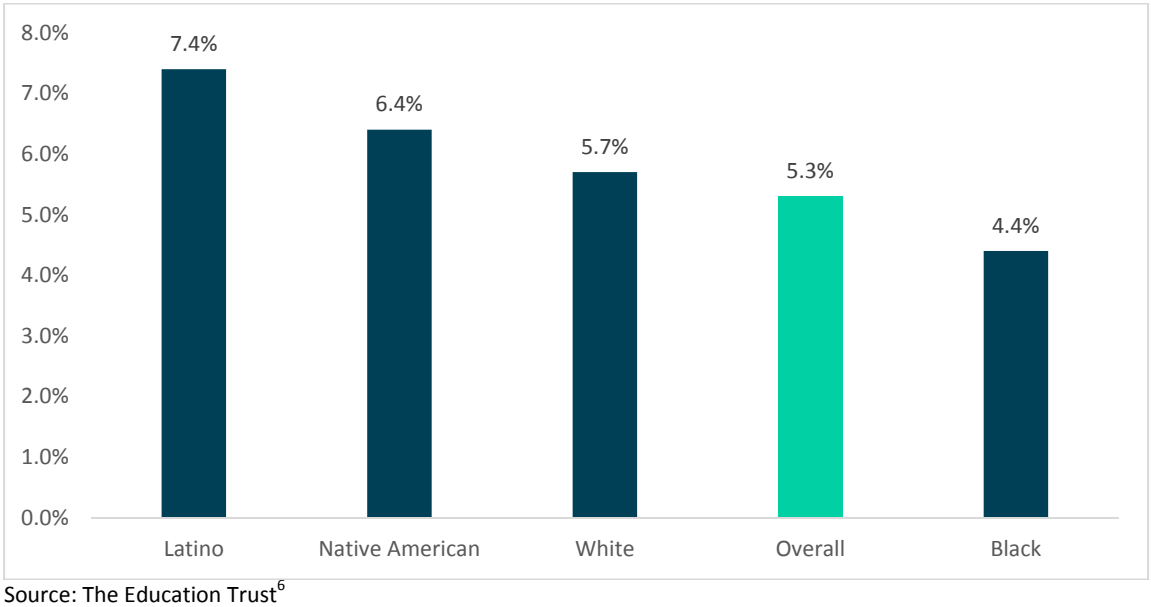
[3] Ibid. p. 4.

[4] Eberle-Sudré, Kimberlee, et al. "Rising Tide: Do College Grad Rate Gaines Benefit All Students?" The Education Trust. December 2015. p. 1. https://edtrust.org/wp-content/uploads/2014/09/TheRisingTide-Do-College-Grad-Rate-Gains-Benefit-All-Students-3.7-16.pdf

[5] Ibid. pp. 8, 2.

Graduation rate gains vary substantially by student ethnicity, however. As shown in Figure 1.1, gains for Native American and Latino students have been larger than they have been for white students, or overall (shown in teal). Black students experienced the smallest six-year increase in graduation rates at public institutions between 2003 and 2013, and were the only population whose percentage improvement lagged behind the national average improvement of 5.3 percent for all students.

Figure 1.1: Graduation Rate Improvements by Ethnicity, Public Universities, 2003-2013



Source: The Education Trust[6]

The Education Trust authors found no indication that the student bodies and admissions policies of institutions that raised their graduation rates differed substantially from those of institutions that did not, **suggesting that institutional policies are responsible for improvements.**[7] Moreover, they argue that more must be done to improve outcomes among underrepresented minority students, since a nationwide 14 percent gap in graduation rates remains between these students and white students. The current rates of improvement in underrepresent student outcomes are not high enough to close the achievement gap by the end of the 21st Century.

A TAXONOMY OF AT-RISK STUDENT BEHAVIORS

There is a growing body of research dedicated to understanding and categorizing the risk factors that prevent students from completing college. Many of the characteristics that indicate a student may not graduate actually manifest themselves as observable behaviors. A 2015 article published in the *International Journal of Process Education* provides a useful taxonomy of student risk factors and their associated behaviors (reproduced in Figure 1.2) based upon an academic literature review. Aside from "First Generation College Student,"

[6] Ibid. pp. 1-2.
[7] Ibid. p. 3.

each of these risk factors takes the form of one or more associated behaviors that are likely to negatively impact student performance. This subsection provides an overview of these behaviors.

Critical attributes of successful students include the ability to persevere, especially in the face of setbacks, an academic mindset that allows them to grasp the significance of their education, effective learning strategies for difficult, college-level course content, and the social skills required to collaborate, articulate ideas, and seek support. Which of these issues are most problematic in individual cases depends on students' academic and social backgrounds, as well as their unique personalities and attributes. Student support programs must be flexible enough to target students' individual needs, and are likely to involve faculty, staff, and administrators.

Figure 1.2: Critical At-Risk Behaviors that Impact College Success

Attribute of Successful Student	At-Risk Behaviors
Perseverance	▪ **Lacks Self-Discipline:** Easily distracted by social situations & opportunities for immediate gratification, putting off critical work ▪ **Procrastinates:** Puts off all work that doesn't need to be done immediately ▪ **Irresponsible:** Blames others for personal faults or failures; relies on others to make their decisions (helicopter parents) ▪ **Fear of Failure:** Shies away from situations where expectations are challenging and the probability of meeting them is low ▪ **No Sense of Self-Efficacy:** Often feels overwhelmed, powerless, and/or victimized; "There's nothing I can do to change things"
Academic Mindset	▪ **Financial Constraints:** Often runs out of money; doesn't appreciate opportunity costs (e.g., getting a job means less available time for things like school) ▪ **Unmotivated:** Listless and disinterested, finding little meaning in current activity and work ▪ **Aimless (No Clear Direction/Goals):** Deals with life reactively, hoping and wishing for change, but never planning or working for it ▪ **1st Generation College Student:** Uses high school experience as the basis for setting expectations for college (parents are unable to provide a frame of reference for a realistic college experience) ▪ **Fixed Mindset:** Accepts current performance level as permanent; lives up/down to projected performance/labels (e.g., "C-student")
Learning Strategies	▪ **Teacher Pleasers:** Constantly seeks direction from authority/teacher in order to please them ▪ **Unchallenged (Bored):** Feels that the learning challenges are far beneath their level of ability ▪ **Memorizes Instead of Thinking:** Sees knowledge as sets of facts and data that should be memorized ▪ **Doesn't Transfer/Generalize Knowledge:** Approaches each learning challenge as new and unique; fails to recognize old knowledge in new contexts ▪ **Highly Judgmental/Negative of Self:** Constantly self-critical, seeing only mistakes

Attribute of Successful Student	At-Risk Behaviors
	and failures; not appreciating growth or improvement ▪ **Minimal Metacognitive Awareness:** Unaware of one's own thought process; cannot articulate the process for or approach to making decisions or solving problems
Social Skills	▪ **Non-Team Player:** Disrupts groups, becoming either antagonistic/argumentative or silent (disengaged) ▪ **Insecure Public Speaker:** Afraid of speaking in public; avoids speaking out in class ▪ **Lacks a Support System:** Does not engage with others to address current or future social/psychological challenges; engages in negative behaviors (e.g., alcohol or drug abuse, violence, crime, etc.); "I'll solve my own problems" ▪ **Lacks Mentors/Role Models:** Has no one from whom to seek advice or who could assist with career direction and educational goals

Source: Horton[8]

Many at-risk student behaviors—such as the decision to work full-time while pursuing a college degree or an underdeveloped sense of self-efficacy—are caused or exacerbated by situational factors outside of the student and the institution's control. These could include poverty, social marginalization, and poor academic preparation due to struggling neighborhood schools. A January 2015 article published in *Research in Higher Education Journal* goes so far as to suggest that "by the time students are done with high school, there is little that can be done to improve retention rates other than denying admission to students who performed poorly in high school and on placement exams." The authors argue that "to increase the likelihood of a student's retention, it may be necessary to shift the focus to college preparation during the high school years."[9] As discussed in Section II, some colleges and universities have begun partnering with local high schools in order to attract and cultivate qualified students.

[8] Horton, Joanne. "Identifying At-Risk Factors That Affect College Student Success." International Journal of Process Education. 7.1, July 2015. p. 88. http://www.pcrest.com/research/x2015%20Identifying%20At-Risk%20Factors%20That%20Affect%20College%20Student%20Success.pdf

[9] DeNicco, James, et al. "Factors of one-year college retention in a public state college system." Research in Higher Education. 27 (January 2015), p. 9. Accessed via ERIC.

SECTION II: BEST PRACTICES FOR CULTIVATING MINORITY STUDENT ACHIEVEMENT

This section examines promising strategies for mitigating student achievement risk factors—such as family income, academic background, or first-generation student status—as well as unproductive behaviors and attitudes that reduce achievement. In some cases, the student success initiatives discussed are offered as universal student services made available to all students upon matriculation, with additional targeted supports provided for students whose behaviors or academic performance indicate a need. Other universities opt to make their supports more targeted or use a tiered system of support that prioritizes students whose performance indicates that they may not persist.

GENERAL STRATEGIES FOR IMPROVING STUDENT OUTCOMES

While student outcomes have declined, the National Student Clearinghouse authors caution against dismissing efforts to improve graduation and retention. They argue that these programs may have averted even steeper declines in degree attainment:

> These results should not be taken as an indication that the considerable efforts to drive improvement in student outcomes at the institutional, state, and federal levels have been ineffective. Indeed, one might easily conclude that without them the declines could have been even worse for particular types of students or institutions, given the demographic and economic forces at play. In this spirit, we hope that the report helps practitioners and policymakers alike identify where opportunities for improvement may be greatest.[10]

Institutions of higher education appear to be making some progress in identifying retention and graduation initiatives that work and focusing their resources. For instance, Sinclair Community College in Dayton, Ohio, participated in over 100 retention and graduation programs since 2000 as part of a systematic attempt to raise its numbers. In recent years, the College has begun reducing the number of its student success commitments and focusing more sharply on high-impact programs.[11] For instance, it terminated its decade-long partnership with Achieving the Dream, a Lumina Foundation-funded completion initiative focusing on minority and low-income students.[12]

While individual institutions appear to have met with success in certain cases, research on strategies for improving student persistence and graduation rates can be difficult to generalize from one campus to the next. Information is plentiful, but its quality and applicability to specific institutional contexts is harder to assess. For example, the US Department of Education has published a series of working papers describing "Promising

[10] Shapiro, D., et. al. "Completing College: A National View of Student Attainment Rates – Fall 2009 Cohort." Op. cit. p. 6.
[11] Fain, Paul. "After trying everything to increase graduation rates, this college is cutting back." PBS. http://www.pbs.org/newshour/updates/trying-everything-increase-graduation-college-cutting-back/
[12] See: "About Us." Achieving the Dream. http://achievingthedream.org/about-us

and Practical Strategies to Increase Postsecondary Success."[13] This resource compiles self-submitted best practices from colleges and universities throughout the United States, and the Department of Education notes that "we will not be responsible for, and will not certify the accuracy of, any of the information or claims contained in these submissions."[14] The Department of Education also does not provide any evaluation or critique of the strategies themselves, or their potential applicability as best practices in individual institutional contexts.[15]

One widely-cited attempt to develop a set of universal best practices for maximizing student achievement and retention was developed by the Association of American Colleges & Universities (AAC&U) over the past ten years. **Research led by George D. Kuh, Director of the National Institute for Learning Outcomes Assessment, developed a list of "high impact educational practices" that "have been widely tested and have been shown to be beneficial for college students from many backgrounds."[16]** These practices are summarized in Figure 2.1. It is notable that many of the interventions described in the Figure are also among the practices used by institutions that have reduced their achievement gaps.

Figure 2.1: AAC&U High-Impact Student Support Practices

Practice	Key Attributes
First-Year Seminars and Experiences	▪ Often take the form of ongoing seminars that foster regular contact between student groups and a faculty leader ▪ Should focus on academic competencies including critical inquiry, writing, information literacy, and collaborative learning ▪ May involve faculty-student research in the advisor's area of expertise
Common Intellectual Experiences	▪ Can take the form of a "core" curriculum or selection of courses organized around a theme or set of key questions
Learning Communities	▪ Students take two or more linked courses as a group ▪ Generally taught by a single professor or team of instructors ▪ Often emphasize themes, e.g. liberal arts and professional skills
Writing-Intensive Courses	▪ Emphasize writing skills across the curriculum and at all levels ▪ Students learn to write for specific audiences and revise their work ▪ May be tied to thematic course sequences (e.g. ethical inquiry) or academic competencies (e.g. oral communication or information literacy)
Collaborative Assignments and Projects	▪ Focuses on working with, and listening to, others ▪ Can take the form of study groups within courses or collaborative projects

[13] "Promising and Practical Strategies to Increase Postsecondary Success." US Department of Education. http://www.ed.gov/college-completion/promising-strategies
[14] "Promising and Practical Strategies to Increase Postsecondary Success; Request for Information." US Department of Education. September 12, 2012. https://www.federalregister.gov/articles/2012/09/12/2012-22509/promising-and-practical-strategies-to-increase-postsecondary-success-request-for-information
[15] See: Ibid.
[16] "High-Impact Educational Practices, A Brief Overview." Association of American Colleges & Universities. https://www.aacu.org/leap/hips

PRACTICE	KEY ATTRIBUTES
Undergraduate Research	▪ Most common in the sciences, where financial support from the National Science Foundation exists ▪ Faculty typically seek to involve students in their projects
Diversity/ Global Learning	▪ May address diversity in the United States or worldwide, often focusing on racial, ethnic, and gender inequality or human rights, freedom, and power
Service Learning, Community-Based Learning	▪ Provides students with direct experience of issues they are studying in their courses, often with an emphasis on crafting solutions ▪ Emphasizes community service, citizenship, and engagement as essential values
Internships	▪ Provide students with direct, prolonged experience in a workplace aligned with their interests ▪ Can be taken for credit and involve a student project or paper related to the experience
Capstone Courses and Projects	▪ Culminating experience in the student's major field(s) that should integrate what they have learned ▪ Examples include research projects, performances, portfolios, or service projects

Source: Association of American Colleges & Universities[17]

Strategies like the AAC&U essential practices, as well as supports specifically designed to reach underrepresented minority students, need to be tailored to individual institutions' student populations and resources. The 2015 Education Trust report calls for "deliberate action" on the part of university leaders. Specifically, universities "should look at their data, find the troublesome trends, and engage faculty, staff, and students themselves in identifying ways to best support all students toward success."[18]

ENHANCING STUDENT PREPARATION

The AAC&U High-Impact Practices may not suffice to meet the needs of students whose academic preparation is insufficient to meet the academic demands they face. For such students, institutions may need to encourage a cultural shift among faculty to transition from viewing students as "underprepared" to seeing them as "high potential."[19]

HIGH SCHOOL PARTNERSHIPS AND MINIMUM CREDIT LOADS, SAN DIEGO STATE UNIVERSITY

Other institutions have had notable success in closing the achievement gap when they began working with local high school students. San Diego State University (SDSU) is a national leader in reducing the minority student achievement gap based upon every selection methodology used in this report (see Figures A1, A2, and A3). **University leaders credit their success in large part to "partnerships with neighboring school districts that seek to identify high-achieving, underrepresented students as early as seventh grade in order to connect them with college early on."** Through this outreach, the University helps

[17] Ibid.
[18] Eberle-Sudré, Kimberlee, et al. "Rising Tide: Do College Grad Rate Gaines Benefit All Students?" Op. cit. p. 8.
[19] "Leading Change – Increasing Graduation Rates at CSU-Northridge." The Education Trust. Op. cit. pp. 10-11.

to train teachers to prepare students for college-level work and also allows students who are need development courses to complete them the summer before they matriculate.[20]

The University is also seeking to streamline developmental education to increase access and improve graduation times. Research is inconclusive about whether or not participating in non-credit developmental education makes student less likely to persist. One argument most recently advocated by James DiNicco, et al., claims that while participating in remedial coursework may not be a risk factor in its own right, it does lower the number of credits a student can earn during the first year of enrollment. It is indirectly important because the number of credits a student earns during the first year is one of the most essential, if not the most important, predictor of their persistence.[21] **Through its summer developmental education offerings and its push to ensure that all students take at least 15 credits per semester, SDSU emphasizes high expectations for its students while still equipping them to succeed.[22]**

As of fall 2014, SDSU's Talent Search Program worked with one local elementary school, three middle schools, and six high schools. Its purpose is "to identify qualified youths and guide them in the process of enrolling in an institution of post-secondary education and providing information on the availability of financial aid."[23] It includes the following services:[24]

- Academic counseling and general guidance
- Career exploration
- SAT/ACT test information
- College visits and guidance
- Application assistance
- Financial aid information and assistance
- Motivational and informational group sessions
- Academic tutoring

Services are delivered primarily by a cohort of 50 full-time SDSU undergraduate students who are "recruited, selected and trained to serve as tutors to keep at-risk-youth in school and increase their academic skills." They receive credit for their efforts through the University's Teacher Education 362 service learning course.[25]

[20] Eberle-Sudré, Kimberlee, et al. "Rising Tide: Do College Grad Rate Gaines Benefit All Students?" Op. cit. p. 4.
[21] DeNicco, James, et al. "Factors of one-year college retention in a public state college system." Op. cit. p. 8.
[22] Eberle-Sudré, Kimberlee, et al. "Rising Tide: Do College Grad Rate Gaines Benefit All Students?" Op. cit. p. 8.
[23] "Talent Search." San Diego State University. September 17, 2014. p. 2. http://go.sdsu.edu/education/pci/files/03998-ts_brochure_English_2014_9_17_14.pdf
[24] List summarizes content from: Ibid.
[25] Ibid.

CULTIVATING PERSEVERENCE AND ACADEMIC ENGAGEMENT

This subsection examines strategies designed to cultivate perseverance among college students and foster a productive attitude, or mindset, for approaching postsecondary academic demands. In a 2015 Wall Street Journal editorial, McKinsey & Company Global Managing Director Dominic Barton highlights findings from a recent McKinsey study of college student persistence and success. While the report does not appear to be publically available, its survey of over 3,500 students at "a large Southern state university system" suggests that "'mind-set'—a student's sense of social belonging or grit, for example—is a stronger predictor of whether a student is likely to graduate than previously believed." **The authors found that grit is a better indicator of whether a student will persist in college than external, and more easily measured, factors such as standardized test scores, income levels, and whether or not the student is a first generation college student. A second factor that researchers found to be highly predictive of student outcomes was a sense of social integration within the institution.**[26]

Barton argues that mindset-related interventions designed to instill students with grit and build connections with their colleges and universities "are dramatically boosting graduation rates and demonstrating how we can close achievement gaps—and at surprisingly low costs."[27] A 2006 report completed by the National Postsecondary Education Cooperative and published by the National Center for Education Statistics recommends effective engagement with students and their families prior to matriculation in order to help students and families understand institutional expectations and resources. The authors also recommend creating multiple points of contact between the institution and student populations in order to maximize the chance that students will become actively engaged and develop support networks:[28]

- Ensure that **students and families have accurate information** about college, including real costs and aid availability
- **Clarify institutional values and expectations** early and often to prospective and matriculating students
- **Concentrate early intervention resources** on those with two or more risk factors, such as being the first in the family to go to college and/or being from a low-income background
- **Provide multiple learning support networks,** early warning systems, and safety nets
- Make the **classroom the locus of community**
- Structure ways for more **commuter students to spend time** with classmates
- **Involve every student in a meaningful way** in some activity or with a positive role model in the college environment

[26] Barton, Dominic. "The Most Important Factor in a College Student's Success." The Wall Street Journal. September 16, 2015. http://blogs.wsj.com/experts/2015/09/16/the-most-important-factor-in-a-college-students-success/
[27] Ibid.
[28] List quotes selected recommendations from: Kuh, George, et al. "What Matters to Student Success: A Review of the Literature – Executive Summary." National Symposium on Postsecondary Student Success. July 2006. pp. 2-3. https://nces.ed.gov/npec/pdf/Kuh_Team_ExecSumm.pdf

Three of the high-impact practices advocated by Kuh, et. al., are central to ensuring that students and families are informed, that those who need extra assistance are identified in a timely manner, and that students connect with the wider campus community. **Research suggests that "the odds of earning a baccalaureate degree increase substantially for students whose families are better informed about postsecondary educational opportunities and costs, and who support and encourage their students to become college prepared."** With this in mind, colleges and universities should seek to engage first-generation matriculants and their families as early as possible in their relationship with the institution.[29]

Once students arrive, institutions should ensure that students find communities and supports as soon as possible. Kuh, et al., note that

> In the first weeks and months of college, underprepared first-generation students and ethnic minorities at predominantly White institutions, particularly those from lower income levels, are especially prone to struggle academically and socially.[30]

Student affinity groups and faculty and staff connections have been shown to mitigate feelings of isolation and disengagement. Above all, institutions should work to ensure that students find a role that allows them to take responsibility for daily decisions and tasks within campus organizations or in the classroom.[31]

STUDENT ENGAGEMENT SURVEY AND INTERVENTION, SUNY COLLEGE AT BUFFALO

State University of New York College at Buffalo (Buffalo State) implemented a student engagement survey for incoming freshmen in fall 2009. Together with targeted interventions based on its results, the survey program raised the University's overall retention rate for first-year students by 4.1 percent in the first three years.[32] The University has a long history of success in serving underrepresented student populations. It was the seventeenth most successful institution nationwide at closing the achievement gap between white and underrepresented students between 2003 and 2013. It narrowed the gap by 6.1 percent.[33]

A 2012 account of this project is available on the NCES's *Promising and Practical Strategies to Increase Postsecondary Success* resource page.[34] **The University partnered with MAP-Works, a third-party provider of customized student engagement assessments and tools,[35] to develop a survey administered to first-year students in the third week of the fall or**

[29] Ibid. p. 2.
[30] Ibid. p. 3.
[31] Ibid. p. 3.
[32] Merberg, Eileen. "First-Year Student Success and Retention: Making Achievement Possible." State University of New York College at Buffalo. March, 5, 2012. p. 1. Available for download at: "Promising and Practical Strategies to Increase Postsecondary Success." US Department of Education. Op. cit.
[33] Eberle-Sudré, Kimberlee, et al. "Rising Tide: Do College Grad Rate Gaines Benefit All Students?" Op. cit. p. 11.
[34] Merberg, Eileen. "First-Year Student Success and Retention: Making Achievement Possible." Op. cit. p. 1.
[35] See: "Mapworks: Research-Based. Adaptable & Affordable." SkyFactor. http://skyfactor.com/student-retention-why-it-works/

spring semesters. Every student survey generates an individual profile of the student's overall engagement, interests, and potential risk factors, and this profile is made available to faculty and staff who interact with first-year students.[36]

Figure 2.2 provides a brief description of the attributes and uses for the survey results among students and university employees. The rightmost column also highlights major findings from a recent administration of the survey. These results indicate that many students underestimate the amount of studying required for success and that homesickness, test anxiety, and academic struggles in multiple courses are an issue for approximately one third of respondents.

Figure 2.2: Overview of MAP-Works Survey Results

Student Results Display	University Stakeholder Results Display	Major Conclusions about Student Risk Factors
The program provides at-a-glance information on academics, performance and expectations, financial means, socioemotional issues, and behaviors and activities. A red-yellow-green color code indicates areas of concern.	Student reports allow faculty and staff to reach out to at-risk students in a timely manner, coordinate efforts across departments through alerts and notes, and prepare for student meetings in advance.	▪ 49.2% plan to study > 5 hours per week ▪ 36.2% experience homesickness ▪ 35.2% experience test anxiety ▪ 32.1% struggle in at least two courses ▪ 31.9% missed >2 classes

Source: State University of New York College at Buffalo [37]

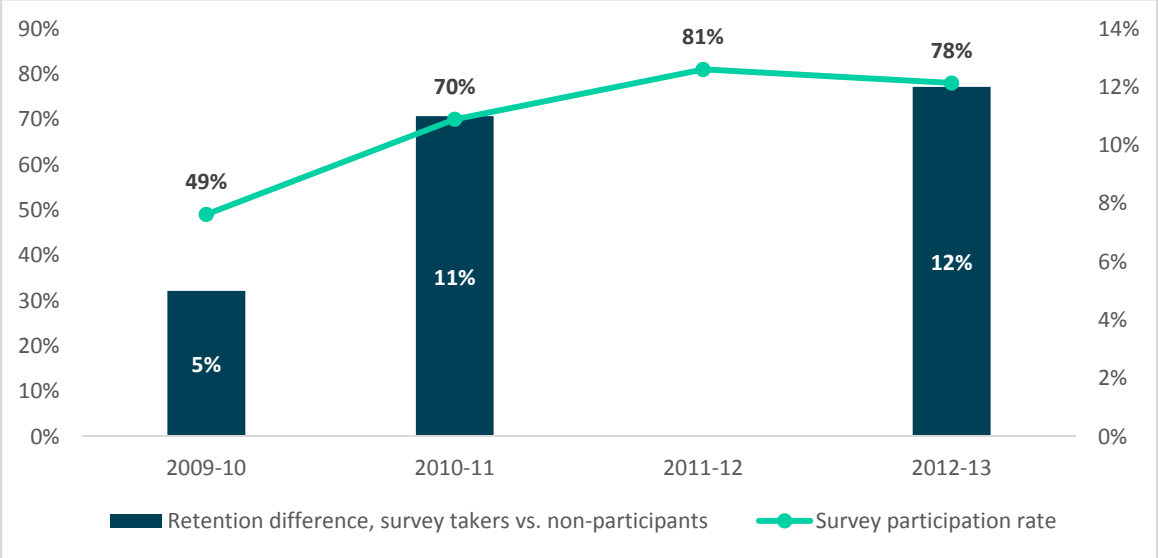
In addition to the students themselves, stakeholders who can access student profiles include all faculty members, the University Equal Opportunity Program and Student Support Services Office, advisors for undeclared students, athletic coaches, mentors in the University's COMPASS and NIA programs, resident directors, resident assistants, and the Disability Services office.[38] Figure 2.3 summarizes the improvements in student retention among students who participated in the survey (blue bars), relative to those who did not. The teal line indicates student response rates for the survey, which appear to have plateaued at approximately 80 percent.

[36] "MAP-Works." State University of New York College at Buffalo – Student Life. http://studentlife.buffalostate.edu/map-works

[37] [1] "MAP-Works Student Retention and Success Platform." State University of New York College at Buffalo. http://studentlife.buffalostate.edu/sites/studentlife.buffalostate.edu/files/uploads/MAP-Works/MAP%20Info%20Quick%20Facts.pdf
[2]"Making Achievement Possible." State University of New York College at Buffalo. p. 2. http://studentlife.buffalostate.edu/sites/studentlife.buffalostate.edu/files/uploads/MAP-Works/1415-21%20MAP-Works%20Brochure.pdf

[38] Ibid. p. 2.

Figure 2.3: State University of New York College at Buffalo Survey Participation Rates and Retention Gains



Source: State University of New York College at Buffalo [39]
Note: Retention data unavailable for 2011-12 academic year.

BUILDING LEARNING STRATEGIES AND SOCIAL SKILLS

Helping students to adjust to the culture and expectations of postsecondary institutions, and to develop goals and academic competencies, is essential to their success. This subsection profiles two frequently-used types of initiatives designed to meet these goals: first year seminars and intensive academic advising. In some cases, these services are combined into a single program, while other institutions favor one strategy over another or offer them independently of one another. Both types of intervention are widespread among colleges and universities in the United States and are capable of redirecting students whose behaviors or performance indicate that they are at-risk of dropping out.

It should also be noted that these services tend to address both at-risk behaviors related to college achievement and success and outside factors like poor academic preparation and financial need, which also influence students' chances of success and may make them more likely to engage in at-risk behaviors.

FIRST-YEAR SEMINARS

Many institutions rely on first-year student seminars or introductory course sequences to help students master critical skills in research, critical thinking, study skills, teamwork, and presentation skills. Since the first-year seminar was first introduced in the United States in the early 1970's, it has become almost ubiquitous. **A 2014 analysis published in the *Journal of College Student Retention* suggests that first-year seminars are now offered at "over 90**

[39] Data synthesizes information from:
[1] Merberg, Eileen. "First-Year Student Success and Retention: Making Achievement Possible." Op. cit. pp. 1-2.
[2] "Making Achievement Possible." State University of New York College at Buffalo. Op. cit. p. 2

percent of…American colleges and universities," making these types of courses by far the most widespread method of equipping incoming students for academic success.[40]

A 2014 doctoral dissertation published by the University of Louisville offers a meta-analysis of 45 studies on the relationship between first-year orientation seminars and retention and/or student grades. Of the 11 studies that examined student GPAs, 10 attributed statistically significant benefits to freshmen seminars.[41] However, the author cautions that the GPA impacts "are relatively small in practical terms."[42] **In the 43 studies that looked at student retention, first-year seminar participants were an average of 1.5 times more likely than nonparticipants to persist to their second year as a result of the seminar, though retention gains were relatively modest in practice.[43]**

Institutions offering a first-year seminar must make a range of choices about the goals, content, duration, structure, pedagogies, and credit values of these courses, as well as who teaches them (e.g. academic faculty or student support personnel) and who takes them (e.g. all students or selected student populations). In a series of interviews with program stakeholders at three moderately selective research universities, Karen Reid, et al., conclude that the three programs differ in terms of the degree to which institutional culture and belonging are emphasized relative to academic skills, the emphasis on teaching college success strategies, and the degree to which participation is mandatory.[44]

Major similarities among all three seminar programs include attempting to offer "rigorous, but not overpowering experiences," a focus on tapping approachable, knowledgeable professors with an interest in building relationships with incoming students, and the use of peer and faculty mentors.[45] The contents and goals of the three seminar programs studied are summarized in Figure 2.4.

[40] Reid, Karen, et al. "College First-Year Seminars: What are We Doing, What Should We Be Doing?" Journal of College Student Retention. 16.1 (May 2014), p. 73. Accessed via ERIC.
[41] Berry, Matthew S. "The Effectiveness of Extended Orientation First Year Seminars: A Systematic Review and Meta-Analysis." University of Louisville. August 2014. pp. 58, 63. http://ir.library.louisville.edu/cgi/viewcontent.cgi?article=1104&context=etd
[42] Ibid. p. 91.
[43] Ibid. p. 91.
[44] Reid, Karen, et al. "College First-Year Seminars: What are We Doing, What Should We Be Doing?" Op. cit. pp. 77-78, 89-90.
[45] Ibid. pp. 89-90.

Figure 2.4: Characteristics of Three University First-Year Seminars

Program Attribute	Southeast US Institution	Intermountain US Institution	Southwest US Institution
Intended Participants	Selected students, not mandatory	Not mandatory, approximately 80% of students enroll	Voluntary, open to students with <30 credits
Instructors	Faculty and staff	Faculty (10%) and staff (90%)	Primarily faculty, augmented with some staff instructors
Instructor Selection	Administrative recommendation based on faculty reputation	Recruited from academic departments and admissions, academic advising, and orientation staff	Recruited from academic departments or professional and student services staff
Mentoring	Upperclassmen student teaching assistants	Not offered	Not offered
Format	3 or more related courses	1 course, 28 class meetings	Variable
Course Enrollment	10-19 students, with some larger sections as warranted	Not specified	Variable, depending upon the College offering the program
Course Theme(s)	Varied concentrations relevant to different majors	Financial literacy, health and safety, substance abuse, library resources, Common Reading Experience discussion, community service	Varied academic concentrations in Education, Arts and Sciences, and Urban Affairs, general wellness
Academic Skills Emphasized	University culture and expectations, goal setting	Writing, presentations, research, exam preparation	Time management, study skills, diversity, career planning, critical thinking, listening, note taking, reading, studying, writing, speaking
Academic Credit	9-10 credit hours	3 credit hours	3 credit hours
Additional Goals	Major exploration	Fostering student communities	Optional participation in a learning community

Source: Reid, et al.[46]

Intensive Advising and Life Coaching

Almost all universities offer some form of first-year experience, and their success in serving underrepresented minority students varies significantly. Thus, it is difficult to assess the efficacy of the practice overall. This is not the case for intensive academic advising programs, which have been shown to substantially improve student retention and engagement. **A widely-circulated 2011 study published by Eric Bettinger and Rachel Baker of the Stanford University School of Education attributes dramatic retention gains to holistic, robust academic advising—or "life coaching"—programs.**

[46] Figure summarizes content from: Ibid. pp. 79-88.

During the year in which they received intensive advising, students in the study were 5.3 percent more likely to remain enrolled than those who did not, and even a year after the advising service ended participants were still 3.4 percent more likely to have persisted. **On average, the advising program is credited with raising student graduation rates at the institutions studied by an average of four percent.** The overall impact of the student life coaching initiative is also remarkably consistent, and the "results do not "change when we control for age, gender, ACT score, high school GPA, SAT score, on- or off-campus residence, receipt of a merit scholarship, Pell Grant awards, math and English remediation."[47]

Bettinger and Baker describe student life coaching as focusing on both academic issues and "the student's life outside of school" including "topics such as personal time commitments (work scheduling), primary care-giving responsibilities, and financial obligations are common."[48] Their study focused on advising services provided via phone conversations and the internet by a third-party student life coaching firm called Inside Track. The company has served clients ranging from Pennsylvania State University to DeVry University, and its coaches all hold bachelor's or advanced degrees. **Inside Track operates from call centers in San Francisco, Nashville, and Portland, Oregon and their rapport with students is described as "mix of therapist, gentle taskmaster and savvy expert on how college works."[49]**

While outsourcing student advising services is one option, some institutions have built up their in-house advising staff to offer the service more widely. The University of South Carolina operates a well-regarded in-house advising program. It was launched in 2005 as an optional program, and that year ACE counselors had a total of seven appointments. As of 2014, ACE had approximately 2,000 appointments and its counselors had partnered with various academic units at the University, which require struggling students to see a counselor**. USC ACE coaches work to address student performance issues and instill study skills, but they also work with students to develop goals and make academic and career plans to meet those objectives.[50]**

[47] Bettinger, Eric P. and Rachel B. Baker. "The Effects of Student Coaching in College: An Evaluation of a Randomized Experiment in Student Mentoring." Stanford University School of Education. March 7, 2011. pp. 3-4. This study was later published in *Educational Evaluation and Policy Analysis*. See: Bettinger, Eric P. and Rachel B. Baker. "The Effects of Student Coaching: An Evaluation of a Randomized Experiment in Student Advising." Educational Evaluation and Policy Analysis. 36.1. March 2014. Accessible via Sage Journals.

[48] Ibid. p. 2.

[49] [1] "Home." Inside Track. http://www.insidetrack.com/
[2] For a brief overview of Inside Track and its services and clientele, see: Fain, Paul. "Coach Knows Best." Inside Higher Ed. May 24, 2013. https://www.insidehighered.com/news/2013/05/24/insidetracks-student-coaching-proves-completion-payoff

[50] "Retention and student success: Implementing strategies that make a difference." Ellucian. http://www.ellucian.com/Insights/Retention-and-student-success--Implementing-strategies-that-make-a-difference/

INTEGRATED FIRST-YEAR RETENTION PROGRAMS: TWO CASE STUDIES

This subsection draws upon Hanover's study of noted programs for reducing the achievement gap at two universities, both of which are noted for their progress in this area. **One central theme from both of these short case studies is the degree to which successful institutions develop a comprehensive, integrated approach to student retention and achievement that aligns with their institutional culture, resources, and population.** When deciding among possible approaches to student success—e.g. advising and life coaching or first-year seminars—successful institutions seldom approach the choice as an either-or decision. They mix, match, and combine strategies and elements to meet the needs of specific student populations and achieve targeted performance goals.

LEARNING COMMUNITIES, MENTORING, AND ADVISING, CSU LONG BEACH

California State University Long Beach (CSULB) is noted by both the Hanover Research analysis of institutions that have closed their achievement gaps (Figure A1) and by a 2016 Education Trust report, which ranks it 25th in the nation for improving its overall graduation rate and closing the gap in graduation rates between black and white students.[51] The University published a series of briefings on several notable initiatives including a First-Year Learning Communities and Mentoring program and Academic Advising Interventions to Ensure a Timely Graduation.

CSULB offers a tiered set of learning communities that offer progressively more intensive support for students whose academic performance indicates they are at risk of dropping out. The University's Beach Learning Community is "a required program for students with the lowest placement scores in math and writing" in which "students take a common set of courses and receive extra academic support and advising." Its Partners for Success program is designed for students whose academic credentials do not qualify them for the Beach Learning Community, but who may still need additional guidance and support. These students receive faculty mentoring.

The University also offers a number of affinity group learning communities and residential programs that students can elect to join, though in some cases "particular cohorts of students are required to participate in these programs." The Beach Learning Community initiative is credited with increasing the proportion of students who complete their developmental coursework by 20 percent, and contributed to a six percent increase in the number of at-risk students who persist into their sophomore year.[52] The major objectives of CSULB's learning communities include:[53]

- Build a sense of community among first-year students
- Provide opportunities for first-year students to interact with faculty in small-class settings

[51] Eberle-Sudré, Kimberlee, et al. "Rising Tide II: Do Black Students Benefit as Grad Rates Increase?" Op. cit. p. 11.
[52] Mahoney, Lynn. "First-Year Learning Communities and Mentoring." California State University Long Beach. p. 1. Available for download at: "Promising and Practical Strategies to Increase Postsecondary Success." US Department of Education. Op. cit.
[53] List quoted verbatim from: Ibid.

- Provide academic support (tutoring and supplemental instruction) to the most at-risk students.
- Provide proactive advising to first-year students

CSULB also provides robust academic advising program to ensure that students graduate on time. All first-year students are required to meet with an advisor three times during the year. Once students reach their sixth semester of enrollment, they receive additional advising as part of the Destination Graduation program. Destination Graduation students are divided into cohorts and assigned advisors.[54] The advising system is designed to:[55]

- Introduce first-year students to the importance of academic advising
- Identify juniors who are not making progress-to-degree
- Proactively reach out to students who are in need assistance
- Ensure that rising seniors have realistic graduation plans
- Ensure that seniors stay on track for their intended graduation

STUDENT SUPPORT PROGRAM IMPACTS AND PROGRAM ASSESSMENT

This final subsection examines research on the impacts of first-year retention initiatives including student engagement initiatives, first-year seminars, and intensive advising or life coaching. As discussed in the examples above, these terms are somewhat interchangeable. For instance, the MAP-Works engagement survey developed by Buffalo State is used in practice to help faculty and staff direct their mentoring efforts. Similarly, the first-year seminar at the Southeast US institution profiled in Figure 2.4 incorporates mentoring, and CSULB offers academic advising and intensive mentoring programs to students at various stages of their college careers.

A 2010 report that examines first-year seminars at a variety of large public research universities notes that "many first year seminars are academically focused, count toward general education requirements, and prepare students for the intense academic load they will face in college." However, the author notes that "other courses are offered for university elective credit or no credit and focus more on the personal transition to college," and that some programs pair students with faculty or peer mentors.[56] Some experts suggest that the credit count and content may not even matter as much as the relationships and informal mentoring that occurs in these classrooms. Dan Berrett argues in the *Chronicle of Higher Education* that "the primary allure of a seminar is its ability to put small groups of students in close contact with a seasoned scholar."[57]

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[54] Mahoney, Lynn. "Academic Advising Interventions to Ensure a Timely Graduation." California State University Long Beach. p. 1. Available for download at: "Promising and Practical Strategies to Increase Postsecondary Success." US Department of Education. Op. cit.

[55] List quoted verbatim from: Ibid.

[56] Higgins, Margaret. "The First Year Experience." Kansas State University Master's Thesis. 2010. p. 61. https://www.k-state.edu/first/MargaretHiggins2010.pdf

[57] Berrett, Dan. "The Many Faces of the Freshman Seminar." The Chronicle of Higher Education. July 29, 2013. http://www.chronicle.com/article/The-Many-Faces-of-the-Freshman/140543

Substantial variations in what universities and researchers mean when they refer to retention and achievement interventions like first-year seminars and advising programs have made it difficult to generalize about the success of such programs. Even within single campuses, variations between sections can impact results.[58] Summarizing two decades of research on first-year seminars in a 2006 article, Kathleen Goodman and Ernest T. Passarella write that "research documenting positive outcomes of first-year seminars is still in its inaugural stages" and concede that "first-year seminars vary greatly in form and function across institutions." Moreover, the most two reliable means of ensuring an accurate comparison—matching salient characteristics of participant and nonparticipant groups and randomly assigning students to these groups—are seldom attempted because they are often "neither practicable nor desirable" among institutions.[59]

Despite differences in program design and institutional context, and the challenges of conducting rigorous assessments, there is ample evidence that first-year programs have a modest positive effect on student performance. A white paper by Marymount College professor of psychology and first year experience expert Joe Cuseo writes that "there has been more carefully conducted research on, and more compelling empirical evidence gathered for, the first-year seminar than any other course offered in the history of higher education."[60] Likewise, Goodman and Pascarella's review of more than 40 studies suggests that seminar participants are more likely than nonparticipants to graduate in four years. They estimate an average effect size of five to 15 percentage points, but caution that the low-range estimate is probably more accurate since "none of the studies controlled for students' precollege characteristics."[61] As Berrett argues in his 2013 *Chronicle of Higher Education* piece, first-year seminars may be "better than many of the alternatives" for introducing students to college-level work and building relationships and aspiration, but "the question is whether they are good enough" to justify the resources they consume.[62]

Studies of first-year experience and mentoring programs at exemplary institutions cited in the Appendix provide evidence of the diversity and success of first-year experience and mentoring programs, and their potential contributions to reducing the achievement gap. Relatively few studies conducted at these institutions appear to focus specifically on underrepresented students, though research suggests that the benefits of well-run first-year seminars are universal across student groups.[63] One randomized trial conducted at the

[58] Ibid.
[59] Goodman, Kathleen, and Ernest T. Pascarella. "First-Year Seminars Increase Persistence and Retention: A Summary of the Evidence from How College Affects Students." Association of American Colleges & Universities. 8.3 (Summer 2006). https://www.aacu.org/publications-research/periodicals/first-year-seminars-increase-persistence-and-retention-summary
[60] Cuseo, Joe. "The Empirical Case for the Positive Impact of the First-Year Seminar-Research on Student Outcomes." Accessed via the University of Wisconsin. p. 1. http://www.uwc.edu/sites/uwc.edu/files/imce-uploads/employees/academic-resources/esfy/_files/empirical_case_for_the_positive_impact_of_the_first-year_seminar_research_on_student_outcomes.pdf
[61] Goodman, Kathleen, and Ernest T. Pascarella. "First-Year Seminars Increase Persistence and Retention: A Summary of the Evidence from How College Affects Students." Op. cit.
[62] Berrett, Dan. "The Many Faces of the Freshman Seminar." Op. cit.
[63] Goodman, Kathleen, and Ernest T. Pascarella. "First-Year Seminars Increase Persistence and Retention: A Summary of the Evidence from How College Affects Students." Op. cit.

University of Maryland, College Park found that first-year seminar participants were "significantly more likely to persist than similar students who did not participate in the seminar." [64] The Education Trust has identified the University of Maryland, College Park as a leading institution for closing the achievement gap for underrepresented minority and Black students, and the University also made Hanover's list of universities that have made progress in reducing achievement gaps (see Figures A1, A2, and A3 in the Appendix).

A 2008 study of the first year program at Indiana University-Purdue University Indianapolis (IUPUI)—which is noted by the Education Trust for improving achievement rates among underrepresented minority students (see Figure A.2)—confirms the success of its first-year seminar. At the time of the study, all of the University's degree-granting units were required to offer a 1-3 credit extended orientation seminar. The version studied was team-taught by "an instructional team composed of a faculty member, academic advisor, librarian, and student mentor." Each instructional team served a served a section capped at 25 students and tied to an introductory course such as elementary composition or college algebra. The program's primary aim was to build academic and critical thinking competencies. The study, which sought to measure one-year retention rates and control for differences in its experiment and control groups, found that retention rates among participants were nearly 10 percentage points higher than among nonparticipants. In 2005 and 2006, the retention rates for participants were 65 and 66 percent, respectively, compared to 56 and 55 percent for nonparticipants.[65]

[64] Ibid.
[65] Griffin, Angela M. and Romm, Jonathan. "Exploring the Evidence: Reporting Research on First-Year Seminars, Volume IV." University of South Carolina. 2008. pp. 27-40. http://sc.edu/fye/resources/fyr/pdf/MExpEvid_IV.pdf

APPENDIX: INSTITUTIONS WITH SHRINKING ACHIEVEMENT GAPS

This Appendix provides an overview of institutions shown to have reduced their achievement gaps according to Hanover's analysis of NCES completions data, and/or according to two analyses conducted by the Education Trust. Each of these analyses uses slightly different methodologies and focuses on different student populations. The lists of successful institutions are included in the figures below and the selection methodologies are described.

HANOVER RESEARCH – FOCUS ON BLACK AND HISPANIC STUDENTS

Hanover took several steps to identify colleges and universities that have made gains in minority student achievement and/or reduced racial inequalities. All institutional data was retrieved from yearly estimates provided by the Integrated Postsecondary Education Data System (IPEDS), a data source managed by the National Center for Education Statistics (NCES) that tracks trends in postsecondary education and school characteristics. Hanover compiled data that reflects 2014 estimates, the most recently available data file, as well as information collected in 2004.

Using the 2014 data, Hanover first created a list of all four-year, public institutions with a large enrollment size (20,000 students or greater). These factors shape the educational context and resources that students have access to and likely impact student retention and graduation. After compiling this list, Hanover collected and/or calculated the following metrics for each institution:[66]

- **2014 Total Student Enrollment**: Hanover collected the percent of total enrolled students that are white, black, and Hispanic. These estimates are provided directly by IPEDS.
- **2004 Graduation Rate**: Hanover collected the percent of white, black, and Hispanic students that graduated in 2004. These estimates are provided directly by IPEDS.
- **2014 Graduation Rate**: Hanover collected the percent of white, black, and Hispanic students that graduated in 2014. These estimates are provided directly by IPEDS.
- **Change in Graduation Rate (CGR)**: Hanover calculated the difference between black students' 2004 and 2014 graduation rates (values are listed as percentage points). This same measure was calculated for Hispanic students. These estimates indicate whether or not institutions have made gains in the graduation rates of students of color over a 10 year time period.
- **Change in Achievement Gap (CAG)**: Hanover calculated the *change* from 2004 to 2014 in the difference between the white graduation rate and black graduation rate. This same measure was calculated for Hispanic students (all estimates are calculated

[66] All of the metrics reflect estimates for the total student body, including undergraduate and graduate students.

as percentage points). Estimates marked as negative indicate that a reduction in the graduation rate gap occurred from 2004 and 2014 between white students and students of color. Estimates marked as positive indicate that a widening in the graduation rate gap occurred from 2004 and 2014 between white students and students of color.

To narrow the initial list of 140 institutions, Hanover calculated the group's average percent white student enrollment in 2014, yielding a mean estimate of 54.7 percent. All colleges and universities with *larger* white student bodies than this average were dropped leaving 57 institutions remaining. This step was taken to focus Hanover's analysis of achievement gaps at institutions in which there is a considerable proportion of students of color. Hypothetically, gains in achievement by race are not as meaningful if there are relatively few students of color enrolled at the institution. Following this logic, Hanover only kept institutions with black student enrollment larger than the group mean of 9.4 percent and/or Hispanic student enrollment larger than the group mean of 26.0 percent. Approximately 35 of the institutions met one of these two conditions.

Next, Hanover calculated group mean estimates for the black and Hispanic CGR as well as the black and Hispanic CAG. Accordingly, these estimates show that, on average:

- The black student graduation rate (black CGR) increased from 2004 to 2014 by 9.8 percentage points.
- The Hispanic student graduation rate (Hispanic CGR) increased from 2004 to 2014 by 12.0 percentage points.
- The black-white graduation achievement gap (black CAG) reduced from 2004 to 2014 by .6 percentage points.
- The Hispanic-white graduation achievement gap (Hispanic CAG) reduced from 2004 to 2014 by 2.7 percentage points.

With these estimates in mind, Hanover sorted the 35 institutions according to how their estimates compared to the group CGR and CAG averages. Finally, Hanover adopted a set of 15 exemplar institutions with notable minority student enrollment and gains in *either* CGR or CAG estimates larger than the group averages. Figure A below lists the final set of exemplar institutions and information about their student enrollment, graduation rates, and the improvements made to their achievement gaps.

Figure A1: Exemplar List and Selected Racial and Achievement Estimates

2014 Total Student Enrollment (%)			White Graduation Rate (%)		Black Graduation Rate (%)		Hispanic Graduation Rate (%)		CGR (percentage points)		CAG (percentage points)	
White	Black	Hispanic	2004	2014	2004	2014	2004	2014	Black	Hispanic	Black	Hispanic
Broward College												
21	33	34	24	38	13	30	24	35	17	11	-3	+3
California State Polytechnic University-Pomona												
21	3	38	46	61	24	40	34	50	16	16	-1	-1
California State University-Long Beach												
21	4	36	53	72	38	55	43	59	17	16	+2	+3
California State University-Sacramento												
31	5	27	44	51	24	32	31	44	8	13	-1	-6
CUNY Hunter College												
37	11	24	36	50	32	54	26	47	22	21	-8	-7
Florida Atlantic University												
46	19	24	35	45	37	44	32	47	7	15	+3	-5
Miami Dade College												
6	16	68	26	33	18	27	23	34	9	11	-2	-4
Montclair State University												
48	10	22	61	67	50	58	52	62	8	10	-2	-4
San Diego State University												
35	3	29	51	72	34	57	41	59	23	18	-2	+3
Georgia State University												
33	36	8	36	50	48	56	22	55	8	33	+6	-19
The University of Texas at San Antonio												
28	9	48	28	29	25	38	30	33	13	3	-12	-2
The University of Texas-Pan American												
4	1	89	26	35	13	18	26	43	5	17	+4	-8
University of Maryland-College Park												
50	11	8	77	87	57	77	68	80	20	12	-10	-2
University of South Florida-Main Campus												
52	10	18	47	66	42	66	42	69	24	27	-5	-8
Virginia Commonwealth University												
52	16	6	43	59	35	57	26	58	22	32	-6	-16

THE EDUCATION TRUST – FOCUS ON UNDERREPRESENTED MINORITY STUDENTS

The Education Trust's analysis defines underrepresented minority students as black, Hispanic, and Native American students.[67] In comparing graduation rates, the authors averaged three years of IPEDS completions data from the 2003, 2004, and 2005 data years, and rendered this number as the 2003 graduation rate. They then subtracted the 2003 rate from an average of the 2011, 2012, and 2013 IPEDS completions data (referred to as the 2013 graduation rate) to determine which institutions had improved their graduation

[67] Eberle-Sudré, Kimberlee, et al. "Rising Tide: Do College Grad Rate Gaines Benefit All Students?" Op. cit. p. 1.

rates.[68] As shown in Figure A2, 26 public universities both increased their overall graduation rates and made progress toward closing the gap between white and minority students.

Figure A2: Public Universities with Improving Graduation Rates and Reduced Achievement Gaps for Underrepresented Minority Students, 2003-2013

Institution	State	10-Year Δ Between White and URM Students
University of Nebraska-Lincoln	NE	-15.2%
Armstrong Atlantic State University	GA	-12.0%
University of Massachusetts Lowell	MA	-9.6%
Ohio State University-Main Campus	OH	-8.2%
San Diego State University	CA	-7.8%
East Stroudsburg University of Pennsylvania	PA	-7.6%
Washington State University	WA	-7.5%
University of North Carolina at Wilmington	NC	-7.3%
Bridgewater State University	MA	-7.2%
North Carolina State University	NC	-7.2%
San Francisco State University	CA	-6.8%
Rutgers University-Newark	NJ	-6.7%
University of Wisconsin-Madison	WI	-6.6%
CUNY Brooklyn College	NY	-6.5%
Slippery Rock University of Pennsylvania	PA	-6.2%
University of Maryland, College Park	MD	-6.2%
Buffalo State SUNY	NY	-5.4%
University of South Carolina Columbia	SC	-5.2%
University at Buffalo	NY	-5.2%
University of West Georgia	GA	-5.1%
University of Louisiana at Lafayette	LA	-5.0%
Georgia State University	GA	-4.2%
Virginia Commonwealth University	VA	-3.3%
SUNY Oneonta	NY	-2.4%
Nicholls State University	LA	-2.3%
Indiana University-Purdue University Indianapolis	IN	-1.3%

Source: The Education Trust[69]

THE EDUCATION TRUST – FOCUS ON BLACK STUDENTS

In a follow-up to their 2015 report on underrepresented minority students, the Education Trust published a report using the same data and methods of analysis to highlight institutions that have had the most success closing the achievement gap for black students.[70] These institutions are listed in Figure A3.

[68] Ibid. p. 9.
[69] Ibid. p. 5.
[70] Eberle-Sudré, Kimberlee, et al. "Rising Tide II: Do Black Students Benefit as Grad Rates Increase?" Op. cit. p. 11.

Figure A3: Public Universities with Improving Graduation Rates and Reduced Achievement Gaps for Black Students, 2003-2013

Institution	State	10-Year Δ Between White and Black Students
San Diego State University	CA	-15.1%
Armstrong Atlantic State University	GA	-14.1%
East Stroudsburg University of Pennsylvania	PA	-13.6%
California State University-Chico	CA	-12.5%
SUNY College at Old Westbury	NY	-12.5%
CUNY City College	NY	-12.3%
University of North Carolina Wilmington	NC	-10.9%
Miami University-Oxford	OH	-10.7%
California State Polytechnic University-Pomona	CA	-10.6%
California State University-Fullerton	CA	-10.3%
University of Nebraska-Lincoln	NE	-10.0%
CUNY John Jay College of Criminal Justice	NY	-9.7%
CUNY Brooklyn College	NY	-9.4%
Rhode Island College	RI	-9.4%
Rutgers University-Newark	NJ	-8.6%
Ohio State University-Main Campus	OH	-8.6%
University of Michigan-Ann Arbor	MI	-8.1%
North Carolina State University at Raleigh	NC	-7.7%
University at Buffalo	NY	-7.1%
University of Maryland-College Park	MD	-7.0%
Buffalo State SUNY	NY	-7.0%
University of Iowa	IA	-6.6%
Marshall University	WV	-6.1%
University of Nevada-Reno	NV	-5.9%
California State University-Long Beach	CA	-5.7%
University of Louisiana at Lafayette	LA	-5.6%
Rutgers University-New Brunswick	NJ	-5.2%
Slippery Rock University of Pennsylvania	PA	-5.2%
University of West Georgia	GA	-5.2%
University of Washington-Seattle Campus	WA	-5.2%
University of California-Santa Barbara	CA	-4.9%
University of Oregon	OR	-4.6%
University of North Carolina at Chapel Hill	NC	-4.3%
Georgia State University	GA	-4.2%
Texas Tech University	TX	-4.2%
Wichita State University	KS	-4.2%
University of South Carolina-Columbia	SC	-4.1%
University of Arkansas	AR	-4.0%
Washington State University	WA	-3.8%
Virginia Commonwealth University	VA	-3.8%
Tennessee Technological University	TN	-3.8%
San Francisco State University	CA	-3.5%
University of Oklahoma-Norman Campus	OK	-3.3%
Nicholls State University	LA	-3.3%
University of Nebraska at Omaha	NE	-2.9%
Southern Polytechnic State University	GA	-2.7%

Institution	State	10-Year Δ Between White and Black Students
Louisiana State University and Agricultural & Mechanical College	LA	-2.3%
San Jose State University	CA	-2.0%
Georgia Institute of Technology-Main Campus	GA	-2.0%
University of Central Florida	FL	-1.9%
CUNY Hunter College	NY	-1.5%
California State University-Northridge	CA	-1.0%

Source: The Education Trust[71]

[71] Ibid. p. 11.

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4401 Wilson Boulevard, Suite 400
Arlington, VA 22203
P 202.559.0500 **F** 866.808.6585
www.hanoverresearch.com