



CARE

National Commission on Asian American
& Pacific Islander Research in Education

Measuring the Impact of MSI-Funded Programs on Student Success

Findings from the Evaluation of Asian American and
Native American Pacific Islander-Serving Institutions



APIASF® Today's Minds,
Tomorrow's Future®
Asian & Pacific Islander American Scholarship Fund

April 2014

A publication from the Partnership for Equity
in Education through Research (PEER)

CONNECTING RESEARCH TO POLICY AND PRACTICE

This report was made possible by a collaborative effort between the National Commission on Asian American and Pacific Islander Research in Education (CARE), the Asian & Pacific Islander American Scholarship Fund (APIASF), and three campus partners—De Anza College, City College of San Francisco, and South Seattle Community College—involved in the Partnership for Equity in Education through Research (PEER). We are indebted to our funders—Kresge Foundation, Lumina Foundation, USA Funds, and Walmart Foundation—for their generous support for this endeavor.

The authors of this report are Robert Teranishi, Margary Martin, Loni Bordoloi Pazich, Cynthia M. Alcantar, and Tu-Lien Kim Nguyen. Other contributors include Bach Mai Dolly Nguyen, Dina Maramba, Mary Yang, Jisun Yoo, Diqingyuzhen, Jossie Muñoz, and members of the faculty and staff at PEER institutions.

THE KRESGE FOUNDATION



Lumina[™]
FOUNDATION



USAFunds[®]



Save money. Live better.

NATIONAL COMMISSION

Margarita Benitez

Excelencia in Education

Estela Mara Bensimon

University of Southern California

Carrie Billy

American Indian Higher
Education Consortium

Michelle Asha Cooper

Institute for Higher
Education Policy

A. Gabriel Esteban

Seton Hall University

Antonio Flores

Hispanic Association of Colleges
and Universities

Larry Griffith

United Negro College Fund

J.D. Hokoyama

Leadership Education for Asian
Pacifics, Inc.

Neil Horikoshi

Asian & Pacific Islander
American Scholarship Fund

Shirley Hune

University of Washington

Parag Mehta

U.S. Department of Labor

Don Nakanishi

University of California,
Los Angeles

Kawika Riley

Office of Hawaiian Affairs

Doua Thor

White House Initiative on Asian
Americans and Pacific Islanders

Robert Underwood

University of Guam

CARE RESEARCH TEAM

Robert Teranishi

Principal Investigator

Margary Martin

Principal Analyst

Loni Bordoloi Pazich

Research Associate

Cynthia M. Alcantar

Research Associate

Tu-Lien Kim Nguyen

Research Associate

Jossie Muñoz

Research Associate

Bach Mai Dolly Nguyen

Research Associate

Mary Yang

Research Analyst

Jisun Yoo

Research Analyst

Diqingyuzhen

Research Analyst

RESEARCH ADVISORY GROUP

Mitchell Chang

University of California,
Los Angeles

Dina C. Maramba

State University of New York,
Binghamton

Julie J. Park

University of Maryland,
College Park

Oiyen Poon

Loyola University Chicago

Caroline Sotello Viernes Turner

California State University,
Sacramento

Rican Vue

University of California,
Los Angeles

EDITORIAL TEAM

Katie Tran-Lam

Asian & Pacific Islander
American Scholarship Fund

Nora Scullin

Asian & Pacific Islander
American Scholarship Fund

Tia T. Gordon

TTG+PARTNERS

CONTENTS

EXECUTIVE SUMMARY	3
PREFACE	8
INTRODUCTION	10
Context for the Study	10
Purpose of the Report	12
MEASURING INSTITUTIONAL PERFORMANCE	14
Analytic Framework for Examining the Impact of the MSI Program on Institutional Performance	14
The Evaluation of AANAPISI-Funded Programs	14
Our Measures of Student Success	15
DE ANZA COLLEGE	16
Institutional Profile	16
PEER Assessment of IMPACT AAPI Learning Communities	17
CITY COLLEGE OF SAN FRANCISCO	22
Institutional Profile	22
PEER Assessment of AANAPISI STEM	23
SOUTH SEATTLE COMMUNITY COLLEGE	26
Institutional Profile	26
PEER Assessment of the Learning Communities	27
PROJECTIONS FOR CAMPUS-WIDE IMPACT	30
Gap Analysis for Scaling Up Programmatic Efforts	30
Campus-Wide Impact on Student Outcomes	31
LESSONS LEARNED AND LOOKING AHEAD	33
Implications for Practitioners	35
Implications for Policymakers	36
TECHNICAL APPENDIX	37
Data Sources	37
Preparation of the Comparison Groups: Propensity Score Matching	37
Data Analysis Procedure	40
Recruitment Strategies and Selection Bias	40
ENDNOTES	43

EXECUTIVE SUMMARY

This report shares findings from a three-year longitudinal study of three Asian American and Native American Pacific Islander-Serving Institutions (AANAPISIs)—one of the newest minority serving institution (MSI) designations—and provides evidence for the impact of federally-funded campus programs on persistence, degree attainment, and transfer to four-year institutions for low-income Asian American and Pacific Islander (AAPI) students. This report demonstrates the important role of inquiry in enhancing the capacity-building efforts of institutions that serve disproportionately high concentrations of low-income minority students.

For each campus, we studied the impact of grant-funded programs that were either new or modified interventions with explicit goals to address challenges that the campuses identified as barriers to student success. We utilized a research design that enabled us to compare AAPI students in AANAPISI-funded programs (participant) to a comparable group of AAPI students who did not participate in the AANAPISI-funded program (comparison group). The analysis was based on cross-sectional and longitudinal cohort data that contain information on student demographics, course-taking behavior, and course outcomes. The metrics for evaluating student outcomes were aligned with the stated goals of each program's intervention:

- **Short-Term Outcomes:** transition from developmental to college level courses, credit accumulation, and course performance (i.e., grade point average)
- **Long-Term Outcomes:** persistence from one academic term to the next, degree attainment, and transfer from two- to four-year institutions

Key Findings

Below are descriptions of each AANAPISI-funded intervention and the findings associated with each campus.

De Anza College – IMPACT AAPI

De Anza's Initiatives to Maximize Positive Academic Achievement and Cultural Thriving among AAPI (IMPACT AAPI) developed their first AAPI-focused learning community, *Readiness and Success in College-Level English (LinC)*. This learning community paired a developmental English reading and writing course that is two levels below college-level English with a college-credit bearing Asian American literature course. This learning community included: comprehensive wrap-around support services, including an embedded counselor providing services for students in and out of class; culturally-relevant, critical, and engaged pedagogies; and culturally-relevant, critical, and civic curriculum.

Key findings for our analysis of De Anza's IMPACT AAPI learning communities:

- Students in the IMPACT AAPI learning community were more likely than the comparison group to transition from developmental to college-level English.
- Compared to the comparison group, students in the IMPACT AAPI learning community passed their college-level English course, and accomplished the transition in less time.
- Students in the IMPACT AAPI learning communities were more likely than the comparison group to earn associate's degrees.

City College of San Francisco – AANAPISI STEM Program

Both a program and a dedicated site, the AANAPISI STEM program is an academic space that provides a supportive community and a variety of targeted services, including tutoring and study groups, supplemental instruction, priority registration for impacted STEM classes, internship and research opportunities, and special events for students in the program. Support also includes dedicated counselors, specialized tutoring, additional core course sections, and a book loan program. The services offered were determined by a group of faculty and staff who were interested in infusing culturally-responsive approaches to serving low-income AAPI students.

Key findings for our analysis of City College of San Francisco’s AANAPISI STEM program:

- AANAPISI STEM program students attempted more academic credits per term than the comparison group, which shortened their time to completion.
- Compared to the comparison group, AANAPISI STEM program students enrolled in more academically rigorous coursework.
- AANAPISI STEM program students had a higher transfer rate to four-year institutions and transferred in fewer terms compared to the comparison group.

South Seattle Community College – Learning Communities

SSCC chose to use their AANAPISI funding to pilot learning communities, as their data indicated that students in developmental education struggled to transition to college-level coursework. This trend was particularly pronounced among low-income AAPI students who tended to be English Language Learners. The AANAPISI-funded learning communities featured developmental coursework linked to a college success course, as well as access to tutoring and mentoring from peer navigators. Counselors taught the college success course and covered topics such as time management and study skills. Counselors also worked closely with faculty teaching developmental education to enhance curricula, ensure the materials and assignments in each linked course reinforce one another, manage the peer navigators, and follow up with students outside of class.

Key findings for our analysis of South Seattle Community College’s AANAPISI-funded learning communities:

- Learning community participants were more likely than the comparison group to transition from developmental to college-level courses.
- Compared to the comparison group, students in the AANAPISI-funded learning communities had a higher rate of persistence in the term following the intervention.
- Learning community participants were more likely than the comparison group to graduate with an associate’s degree or certificate.

Projections for Campus-Wide Impact

A primary goal of the AANAPISI program is to afford campuses an opportunity to experiment with practices that help students reach their full degree-seeking potential. For each campus, we conducted analysis to estimate the potential for larger, campus-wide efforts to bring AANAPISI-funded programs to scale. We began with a gap analysis to identify the number of students served by these programs and the number of students who met the same qualifications for participating in the program. For the latter group of students, we estimated the numerical increases in short-term and long-term outcomes for AAPI students at the campus level.

- Across the three campuses, there is great potential for bringing programs to scale. For the three campuses in the aggregate, there were an additional 2,903 AAPI students who could gain access to AANAPISI-funded programming (872 at De Anza College, 671 at City College of San Francisco, and 1,360 at South Seattle Community College).
- If the AANAPISI-funded learning communities at De Anza College were brought to scale, we project 863 students would pass developmental English, which is a 59 percent improvement.
- Scaling up the AANAPISI STEM program at the City College of San Francisco would result in 577 AAPI STEM students transferring to a four-year college, which is a 123 percent improvement.
- If AANAPISI-funded Clustered Learning Communities were brought to scale at South Seattle Community College, we estimate 1,312 would persist one term following developmental English or math, which is a 146 percent improvement.

Lessons Learned and Looking Ahead

Based on our findings, below are a set of recommendations for both practitioners and policymakers:

Implications for Practitioners

- These interventions were successful because they were designed in response to a specific need or challenge. Programmatic goals were narrow and targeted, and the activities were all tied to maximizing the potential of the intervention.
- Establishing a culture of inquiry is critical for capacity-building efforts. This includes having institutional researchers as a part of the campus leadership team collaborating with faculty, staff, and administrators.
- Evidence of success should drive efforts to replicate and scale up programs. These findings should also be shared with a broader audience outside of the institution.
- The findings from assessment should be discussed widely between different constituents on campus to generate strategic and thoughtful ways to address broader institutional objectives.

Implications for Policymakers

- Money matters for MSIs – targeted investments can drive innovation, support institutional change, and help raise degree attainment rates.
- Policymakers should consider ways to incentivize the scaling up of programs for which there is a measurable impact of the MSI-funded interventions.
- In order for MSIs to reach their full potential they need support with assessment so they can better understand and refine efforts to improve institutional performance.
- Government and foundations should invest in partnerships that generate innovative and effective practices; there is a critical opportunity to do this with MSIs.

PREFACE

Through generous support from the Kresge Foundation, Lumina Foundation, USA Funds, and Walmart Foundation, the National Commission on Asian American and Pacific Islander Research in Education (CARE) teamed up with the Asian & Pacific Islander American Scholarship Fund (APIASF) and three Asian American and Native American Pacific Islander-Serving Institution (AANAPISI) campus partners—De Anza College, City College of San Francisco, and South Seattle Community College—to create the Partnership for Equity in Education through Research (PEER).

Major Components of PEER

With a goal of supporting AANAPISIs to more fully realize the degree-earning potential of Asian American and Pacific Islander (AAPI) students, PEER engages in co-investigative action research with campus teams to identify promising practices, implement targeted interventions, and mobilize key stakeholders to support greater institutional effectiveness. PEER also includes efforts to work with campus partners to support AANAPISIs in the policy arena by increasing the program's visibility and its impact on the educational mobility of low-income AAPI students. Finally, PEER oversees the dissemination of APIASF scholarships at AANAPISIs, as well as the tracking of scholarship recipients and non-recipients to examine the extent to which scholarships influence the persistence, degree attainment, and transfer rates of low-income AAPI students. This is the first study

of its kind to examine low-income AAPI scholarship recipients at community colleges.

This report is the second in a series of reports that share results from PEER. Because the AANAPISI program is relatively new, it is critical for higher education practitioners, community leaders, and policymakers to have accurate information on AANAPISI programs and the landscape of these institutions. In this report, we share key findings from our evaluation of AANAPISI-funded programs, which involved tracking the impact of funding on the institutional performance of three AANAPISIs that were part of the first group of institutions funded in 2008. This research informs the work of campus partners, as well as the broader effort to develop evaluative tools for assessing the impact of minority serving institutions (MSIs) on the success of low-income students of color.

Advance Institutional Effectiveness

- Co-Investigative Research
- Jointly Develop and Deploy Intervention Plan

Mobilize Community for Increased Support

- Cross-Campus Collaborative
- Promote Increased Investment in AANAPISIs

Accelerate Student Success

- Provide Scholarship Support
- Study Scholarship Recipients

AAPI DEMOGRAPHY AND EDUCATIONAL ATTAINMENT

The United States is at a crossroads of tremendous demographic change. While the population is growing, it is also changing significantly in its composition, and the AAPI population is a significant factor in these demographic changes. In higher education, for example, AAPI enrollment grew five-fold between 1979 and 2009. While college enrollment is projected to increase for all racial groups, AAPIs will experience a particularly high proportional increase of 35 percent over the next decade. With the remarkable growth among AAPIs in higher education, it is important to recognize the shifting demographic makeup of the population with regard to its heterogeneity. The AAPI racial category consists of more than 48 different ethnic groups that occupy positions along the full range of the socioeconomic spectrum, from the poor and under-privileged, to the affluent and highly-skilled.

One of the most misunderstood aspects of the AAPI community pertains to educational

attainment. AAPI students vary widely in their progress through the educational pipeline, which has implications for their educational attainment and outcomes. Access to higher education remains a significant challenge for many AAPI students. Consider that 50 to 65 percent of Southeast Asian and 50 to 60 percent of Pacific Islander adults (25 or older) have not enrolled in any form of postsecondary education. When AAPI students do attend college, there are also notable differences in the likelihood of degree attainment. While more than four out of five East Asians (Chinese, Japanese, and Korean) and South Asians (Asian Indian and Pakistani) who entered college earned at least a bachelor's degree, 35 to 50 percent of Southeast Asian and 50 to 60 percent of Pacific Islander adults (25 years or older) reported having attended college, but not earning a degree. Southeast Asians and Pacific Islanders were also more likely to report an associate's degree as their highest level of education.

INTRODUCTION

This report responds to the call for research to measure the impact of funding from the federal minority serving institution (MSI) program on institutional performance—namely student retention, degree attainment, and transfer from community colleges to four-year institutions. This line of inquiry is critical for examining the ways in which funding from the federal MSI program can be leveraged to pursue innovative practices and measure the impact of the MSI-funded programs relative to institutional performance and student success. In this study, we focus on institutions funded through the Asian American and Native American Pacific Islander-Serving Institution (AANAPISI) program. Created in 2008, the AANAPISI program is a competitive federal grant for institutions serving high concentrations of underserved AAPI students.

The AANAPISI program is important for the AAPI community because it encourages campuses that serve disproportionately high numbers of low-income AAPI students to pursue innovative and targeted strategies that respond to those students' unique needs. The AANAPISI program also signals a national commitment to the AAPI community, rightfully acknowledging low-income AAPI students as a population that faces barriers similar to those of other minority groups. Finally, AANAPISIs are sites of opportunity for experimenting with and evaluating retention efforts specific to AAPI students, a large and growing population in higher education. In this report, we demonstrate the ways in which AANAPISIs are relevant to the broader interest in understanding the role and function of MSIs relative to national higher education policy priorities.

The research we share in this report is part of a larger initiative, the Partnership for Equity in Education through Research (PEER), which is a collaboration between the National Commission on Asian American and Pacific Islander Research in Education (CARE), the Asian & Pacific Islander American Scholarship Fund (APIASF), and three AANAPISIs from the

inaugural cohort of grantees—De Anza College, City College of San Francisco, and South Seattle Community College. In this report, we share findings from a longitudinal assessment of the impact of AANAPISI-funded programs on student persistence, degree attainment, and transfer from community colleges to four-year institutions. This line of inquiry is a critical step toward measuring institutional effectiveness for MSIs. Our goal, as realized through our institutional, policy and student-level efforts described above, is to demonstrate the power of inquiry in enhancing the capacity-building efforts of institutions that serve low-income AAPI students.

Context for the Study

This report complements a recent surge of studies on MSIs.¹ While this body of work responds to a more general trend toward building a culture of evidence in higher education, these studies are important because there has been a particularly pronounced gap in knowledge related to MSIs. The argument for more robust assessment of MSIs focuses on the need for research that can demonstrate the role and function of MSIs, the effectiveness of MSI-funded programs, and

how MSIs can improve their capacity to serve a large and growing concentration of low-income minority students in higher education.

The following themes can be located in prior studies of MSIs:

MSIs are an increasingly relevant sector of higher education. MSIs have a high number and proportional representation of low-income minority students. As minority enrollment increases and higher education moves toward more targeted efforts, MSIs are an important sector of institutions to meet national higher education policy priorities, including the national college completion agenda.²

MSIs are pursuing innovative and evidence-based practices. Institutions use their MSI grants to pursue holistic approaches to serve their students, blending curricular and co-curricular learning experiences. These practices have been found to be effective in promoting persistence, degree attainment, and satisfaction with college.³

Data are a critical, yet underutilized, resource for MSIs. Assessment and decision-making practices are critical for the work of institutional leaders and other practitioners, helping institutions define student success, as well as their approach to measuring performance in the context of their desired outcomes.⁴ Data creates the basis for the narrative of compelling stories, which are needed to represent the role and function of MSIs in higher education.

The extant research on MSIs provides foundational knowledge on student enrollment patterns, descriptions of programs across campuses, institutional mission statements, and aggregate outcomes for individual and groups of institutions. Despite this growing body of research on MSIs, looming questions remain about the measurable impact of the federal program and the institutions that are funded by it. The growing emphasis on accountability in higher education and an interest in evaluation that can measure institutional performance make research on the impact of MSI funding more

urgent. As Deborah Santiago from Excelencia in Education cogently asks, “Is an institutional designation predicated on concentrated student enrollment sufficient to ensure accountability for federal funds to increase a population’s educational attainment?”⁵

A focus on the role and function of MSIs relative to higher education policy priorities is critical and timely. The ability of postsecondary institutions to improve student outcomes is a major goal considering the demand for a more educated workforce amidst a stagnant degree attainment rate over the past decade.⁶ This is particularly important given the gaps in educational attainment for student groups that vary by race, ethnicity, and socioeconomic backgrounds. Considering that MSIs disproportionately enroll large concentrations of low-income minorities, assessing their impact is key for reaping the full degree-granting potential of this sector of American higher education.

MINORITY SERVING INSTITUTIONS

The federal government provides grants to minority serving institutions (MSIs) through a number of federal agencies, with a significant amount of funding authorized through the Higher Education Act of 1965 (HEA P.L. 89-329). Through HEA alone, annual appropriations total more than \$800 million, funding more than 950 institutions. The funding is crucial for MSIs as they typically have fewer resources from tuition revenues or endowments to serve proportionally high-need students. A variety of institutional designations, including Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), Tribal Colleges and Universities (TCUs), and AANAPISIs, among others, fall under the MSI umbrella.

Purpose of the Report

Prior research published by PEER includes case studies of our campus partners—De Anza College, City College of San Francisco, and South Seattle Community College—tracing AANAPISI funding to programs and services implemented on campus. The purpose of this report is to share findings from the assessment of AANAPISI-funded programs at each campus, tracking the extent to which such efforts have a measurable impact on student success through longitudinal research of student-level data.

Two primary research questions drive this report:

1. To what extent are AANAPISI-funded programs associated with improvements in academic performance, degree attainment, and transfer rates for AAPI students?
2. If there is a measurable impact, then what are the implications of these findings for policymakers and practitioners relative to the institutional performance of minority serving institutions nationally?

The report begins with a brief discussion of **the analytic approach** to the study, providing a description of the data sources and methodologies and how we define institutional performance and measure student success. We discuss our research approach in the context of broader efforts to assess institutional performance against the backdrop of national higher education policy priorities.

The next section reports on our **assessment of AANAPISI-funded programs** for each of our campus partners. We provide a description of each campus, the AANAPISI-funded program we studied, and a discussion of the short-term and long-term outcomes.

The following section builds on these findings to provide projections for how the program can have a **larger campus-wide impact** on student outcomes if brought to scale. These projections are based on the proportional increase we identified for AANAPISI-funded interventions in the prior section of the report.

In the last section of the report, we discuss the **implications for policymakers and practitioners**. We

AAPIs IN COMMUNITY COLLEGES

Our three initial campus partners in PEER are all community colleges, which is the sector of higher education that enrolls the largest concentration of all AAPI undergraduates. Prior research from CARE found that AAPI community college students are characteristically different from their counterparts at four-year institutions, often more likely to face challenges associated with academic preparation, delayed matriculation after high school, part-time enrollment, and full-time employment while attending college. They are also more likely to come from low-income backgrounds and be the first in their families to attend college. These factors mean community colleges are critical sites for reaching large concentrations of AAPI students with the greatest risk of attrition.

begin by discussing how this work fits within a broader co-investigative research process to work with our campus partners to refine interventions and ensure sustainability. The report concludes with estimates for the potential impact of these findings if brought to scale across all AANAPISIs.

PEER research raises the national visibility of the AANAPISI program, utilizing data and inquiry to link AANAPISIs to the larger role and function of all MSI programs to increase college access and success for underserved students. Our report builds on a growing body of research on AANAPISIs. This line of inquiry has documented the history of the program, provided a national profile of AANAPISIs, and documented the use of federal funding by AANAPISI campuses. The emerging research on AANAPISIs provides higher education policymakers, practitioners, and researchers with a deeper understanding of MSIs and the students

they serve. Moreover, these studies demonstrate empirically the extent to which being an MSI can position campuses to more effectively serve their students, leverage their funding and/or designation to

gain access to more information and resources, and improve the effectiveness of programs and services funded by their federal grant.

AANAPISIs ARE CRITICAL SITES FOR SERVING LOW-INCOME AAPI STUDENTS

The changing demography of our nation means that our system of higher education must realize a fundamentally different approach to teaching, learning, and student support. The AANAPISI program has potential to reach a large concentration of AAPI college students; the 153 institutions eligible to be AANAPISIs represented only 3.4 percent of all Title IV degree-granting institutions in the U.S. higher education system in 2010, but enrolled 41.2 percent of AAPI undergraduates nationally. Put another way, two-fifths of AAPI undergraduate students in the U.S. attended an institution eligible to be designated as an AANAPISI. AANAPISIs are also critical sites for supporting degree attainment among AAPI students. In 2010, AANAPISIs conferred 47.3 percent of all associate's degrees and 25.3 percent of all bachelor's degrees to AAPI students.

AANAPISIs can target resources to respond to the unique needs of AAPI students. They serve and are located in AAPI communities that face a number of challenges. The institutions that met the initial criteria for AANAPISI funding enrolled 75 percent of all low-income AAPI students in 2007.⁷ The neighborhoods served by the University of Hawai'i at Hilo, for example, had an average poverty rate for Native Hawaiians and Pacific Islanders of 20 percent – nearly twice the national poverty rate of 12 percent. Similarly, in the neighborhoods served by South Seattle Community College, 58 percent of Asian Americans and 71 percent of Native Hawaiians and Pacific Islanders had earned a high school diploma or less.

MEASURING INSTITUTIONAL PERFORMANCE

A stated goal of the Title III MSI program is to help postsecondary institutions expand their capacity to serve low-income students by strengthening academic quality and building a framework for supporting college completion. This study considers the efficacy of the federal MSI program by focusing on AANAPISIs, which is one grant within this program. Previously, we conducted case studies of our three campus partners—De Anza College, City College of San Francisco, and South Seattle Community College—and highlighted how these campuses became AANAPISIs, what programs and activities were funded by their grants, and the perceived impact of these programs and services relative to student success and the broader campus culture. In this report, we focus on one AANAPISI-funded program at each campus, evaluating the impact of the program on institutional performance.

Analytic Framework for Examining the Impact of the MSI Program on Institutional Performance

For each campus, we studied AANAPISI-funded programs that were either new or modified interventions with explicit goals of improving student success. Based on our analysis of budget allocations, each program we studied was funded exclusively by their AANAPISI grant. More specifically, the grant made these targeted efforts possible, which afforded us an opportunity to understand the “added-value” of these AANAPISI-funded programs relative to institutional performance. With this analytic frame in mind, we chose a research design that enabled us to examine the impact of programs on the academic performance and outcomes of students, while also supporting inquiry regarding the role that federal funding plays in helping campuses reach these desired outcomes.



The Evaluation of AANAPISI-Funded Programs

We gauged institutional performance by studying the added value of the AANAPISI-funded program relative to academic performance, credit accumulation, persistence, degree attainment, and transfer from community college to four-year institutions. We utilized a research design that enabled us to compare AAPI students in AANAPISI-funded programs (participant) to a comparable group of AAPI students who did not participate in the AANAPISI-funded program (comparison group). Data were retroactively fitted using a stratified sampling strategy and propensity score matching helped to ensure the program participant and comparison groups were similar in their characteristics at the “baseline” (i.e. prior to participating in an intervention). This is an important approach to assessing program effectiveness because it measures the added value of the intervention, controlling for selection bias among other validity issues (see Technical Appendix for a description of the data source and methodology).

This analytic approach varies from prior assessment of student outcomes at MSIs, which has relied primarily on cross-sectional data reporting on enrollment and degree conferral. An exception is the work of

Flores and Park (2013) who studied MSI campuses in comparison to non-MSI campuses; however, this study did not focus on specific cohorts of students within institutions or students who received direct MSI-funded services.⁸ Our study of individual campuses measures the effectiveness of the programs and services at those campuses and their impact on the specific minority groups they proposed to serve. Doing so enables us to control for the diverse contexts, missions, programs, and practices that vary across MSIs, which make it difficult to assess MSIs as an aggregate group of institutions.

Our Measures of Student Success

Our analysis relies on de-identified student records that contain information on student demographics, course-taking behavior, and course outcomes. In these studies, we focus on both short-term and long-term measures of success for students in the participant and comparison groups.

- **Short-Term Outcomes:** transition from developmental to college level courses, credit accumulation, and course performance (i.e., grade point average)
- **Long-Term Outcomes:** persistence from one academic term to the next, degree attainment, and transfer from community college to four-year institutions

We acknowledge that these measures should not be considered exhaustive definitions of student success.⁹ However, these conventional measures of institutional performance are a primary concern of policymakers relative to national higher education policy priorities.¹⁰ Indeed, the value of a college degree is increasingly correlated with personal and societal well-being,

including upward mobility for low-income minorities who may be the first in their families to attend college. Our analysis in this report was also limited to data available through institutional records, which we used to track students retroactively. However, in other co-investigative research with campus partners, we are studying a number of other measures of institutional performance relevant to the work of AANAPISIs (e.g., leadership development and civic engagement).

SUPPORTING INSTITUTIONAL CAPACITY BUILDING EFFORTS

The federal grant program we studied, Title III Part A, has a goal of supporting institutional capacity-building efforts at MSIs. While we are interested in assessing the impact of MSI-funded programs on student success, PEER aims to identify the ways in which a process of inquiry can inform the refinement, scalability, and sustainability of MSI grant-funded interventions, especially to encourage a focused effort on high-impact practices. We utilize a co-investigative approach with campus teams, consisting of administrators, faculty, and counselors, to collect, analyze, and interpret data on AANAPISI-funded programs. This is a goal-oriented, collaborative process that focuses on ways of modifying institutional practices to support the desired outcomes of each campus team.

DE ANZA COLLEGE: INSTITUTIONAL PROFILE

Named after the Spanish explorer Juan Bautista de Anza, De Anza College has emerged as one of the largest, single-campus community colleges in the country. De Anza College has been described as a “university-like campus” with its tall trees, Spanish-style architecture, large open spaces, and fountains.¹¹ Although the campus is situated in Cupertino—an affluent community in the Silicon Valley—the largest concentration of their students (47.9 percent) are from San José, with smaller concentrations of students from Cupertino (8.4 percent) and neighboring Sunnyvale (10.0 percent). De Anza College has one of the highest graduation and transfer rates in the state of California, yet they explicitly maintain a commitment to community and civic engagement. In their mission statement, they challenge their students to become, “socially responsible leaders in their communities, the nation, and the world.”¹² Their distinguishing features include a civic leadership development program for AAPI students called the Asian Pacific American Leadership Institute (APALI). APALI promotes civic leadership through the summer leadership institute and internship program for college students, and professional development and training for current and future senior civic leaders.

Year Founded:	1967
Location:	Cupertino, CA
Carnegie Classification:	“Public Suburban-Serving” and “Very Large”
Total Enrollment:	37,760 students
Full-Time Students:	43.7%
First-Generation Students:	31.0%
Percent Female:	49.8%
Race/Ethnicity:	Asian (38.7%) Native Hawaiian or Other Pacific Islander (0.5%) White (25.1%) Hispanic/Latino (19.7%) Black or African American (3.6%) American Indian or Alaska Native (0.4%) Two or More Races (4.1%) Race/Ethnicity Unknown (2.2%) Non-Resident Alien (5.7%)
Largest AAPI Sub-Groups:	Chinese (30.4%) Vietnamese (23.2%) Filipino (13.5%) Asian Indian (12.3%)
Average Class Size:	35 students
Term System:	Quarter
AANAPISI Website:	www.deanza.edu/impact-aapi/

DE ANZA COLLEGE: IMPACT AAPI

One of De Anza's many high impact practices is their successful use of learning communities, or what they call "Curricular Pathways." Many of the Curricular Pathways focus on guiding students from developmental English or mathematics to college-level courses. Like many community colleges, the transition from developmental education to college-level courses is a significant challenge for De Anza. In fall 2009, 86 percent of new students who took the English and math placement tests at De Anza did not qualify for college-level courses.¹³ For their AANAPISI grant, De Anza pursued targeted interventions for Filipino, Southeast Asian, and Pacific Islander students, with the goal of increasing their likelihood of transitioning from developmental education to college-level coursework, as well as raising transfer rates to four-year colleges.

Using the AANAPISI grant to address this need, and leveraging their campus strength in learning communities geared toward serving Latino and Black students, De Anza's Initiatives to Maximize Positive Academic Achievement and Cultural Thriving among AAPI (IMPACT AAPI) developed their first AAPI-focused learning community, *Readiness and Success in College-Level English (LinC)*. This learning community paired a developmental English reading and writing course that is two levels below college-level English with a college credit-bearing Asian American literature course. This learning community included the following services:

- Comprehensive wrap-around support services (e.g., an embedded counselor providing services for students in and out of class).
- AAPI culturally relevant, critical, and engaged pedagogies (e.g., critical reflection journals, AAPI community leaders as in-class speakers, small peer support groups called "Pamilyas," which translates into "families" in Tagalog).
- AAPI culturally relevant, critical, and civic curriculum (e.g., students learn about AAPI history, especially as it relates to their communities).

These practices engaged students in and out of class, as well as in their communities. We found that combined, these practices contributed to the educational success of AAPI students, in terms of transitioning to college-level courses and degree attainment. Below we describe our research approach and two of the key findings from the assessment.

86 percent of new students who took the English and math placement tests at De Anza did not qualify for college-level courses.

PEER Assessment of IMPACT AAPI Learning Communities

In our analysis, we compared the educational outcomes of AAPI students in AANAPISI-funded learning community courses (LC) with comparable AAPI students enrolled in developmental English courses, but not enrolled in any learning community (no LC) (see Technical Appendix for methodology and how we constructed the comparison group using propensity score matching procedures). The findings presented focus on the students' transition to college-level English courses and degree attainment.

AAPI students in the IMPACT AAPI learning community were more likely to transition from developmental to college-level English courses, pass their college-level English courses, and accomplish the transition in less time.

We found that AAPI students in the AANAPISI LCs were much more likely to transition into college-level English courses (85.5 percent) compared to AAPI students who did not participate in any LC (54.2 percent) (Figure 1.1). Additionally, in the semester following their enrollment in the intervention, AANAPISI LC students were significantly more likely to pass their college-level English courses (86.5 percent) compared to students who did not participate in the learning communities (50.9 percent) (Figure 1.2). These findings on the transition to college-level courses are important considering that a lack of remedial courses and developmental education are often found to create significant barriers to degree attainment and transferring to four-year institutions.¹⁴

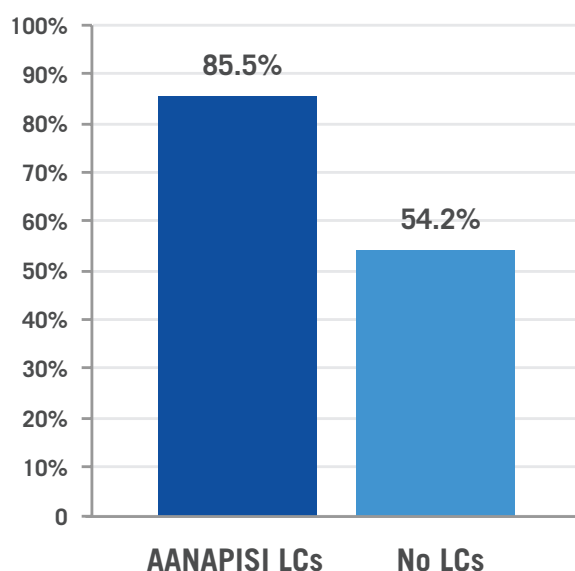
Researchers have found that the length of time it takes students to transition from remedial to college-

level courses is important for the persistence and degree attainment of community college students.¹⁵

In these studies, each additional term diminishes the chances of earning a degree or transferring. A study by MDRC found that students in developmental English learning communities moved through their English requirements more quickly than students who were not in LCs.¹⁶ Similar to MDRC's findings, at De Anza College, AAPI students enrolled in the AANAPISI LCs were more likely to transition into college-level English within two terms (73 percent) compared to their AAPI counterparts with no LCs (53 percent).

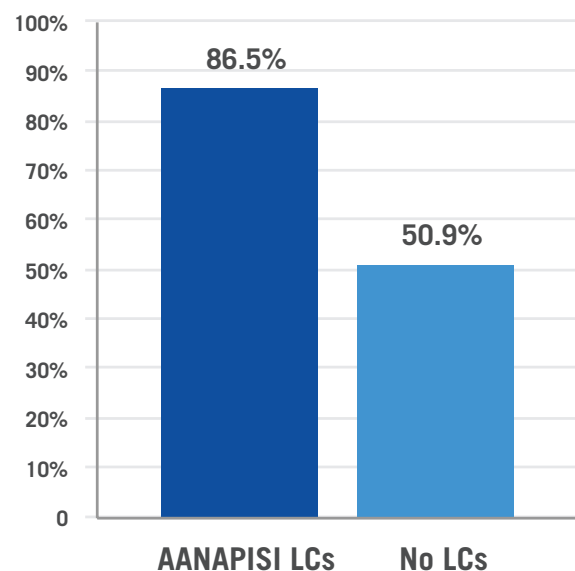
Another explicit goal of the AANAPISI LC was to increase the course success and transfer rates specifically for Southeast Asian and Pacific Islander students, given their historically high rate of placement into developmental education courses and low transition and success rates. We analyzed the college-level English transition and course success rates of these sub-groups in AANAPISI LCs and comparable students who did not participate in any LC. Southeast Asian and Pacific Islander students in

Figure 1.1
Percent Transitioned to
College-Level English Courses



Note: $\chi^2_{(1)} = 30.97, p < .01$

Figure 1.2
Percent Passed College-Level English
Courses (for students originating from
Developmental Education)



Note: $\chi^2_{(1)} = 34.89, p < .01$

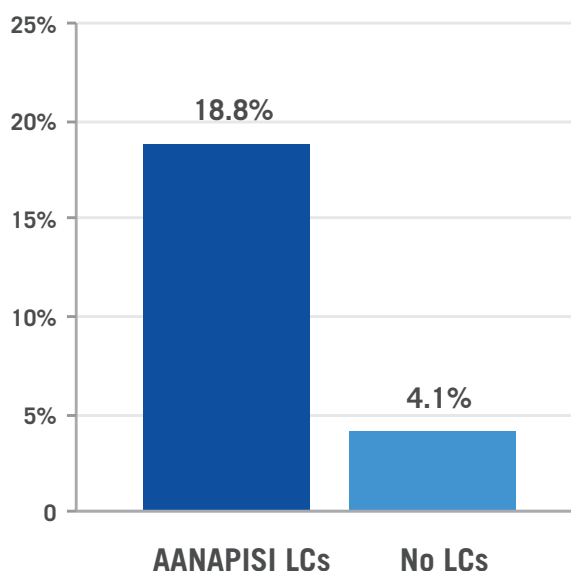
AANAPISI LCs transitioned to college-level English at a slightly higher rate than the comparison group (54 percent vs. 51 percent respectively).

AAPI students in the AANAPISI-funded learning communities were more likely to earn associate's degrees.

Approximately 60 percent of all students entering community college enroll in at least one developmental education course.¹⁷ Students who begin their education in developmental education courses are less likely to persist, transfer, or earn a degree.¹⁸ At De Anza, by the end of the spring 2012 term, AAPI students who participated in AANAPISI LCs earned an associate's degree (18.8 percent) at a significantly higher rate than similar AAPI students who did not participate in any LC (4.1 percent) (Figure 1.3). There was also a difference in the time it took students to earn their degree, although the difference only approached statistical significance. Of those who earned a degree, AAPI students with no LC on average took longer (9.0 quarters) than those who participated in LCs (8.1 quarters) (Figure 1.4).

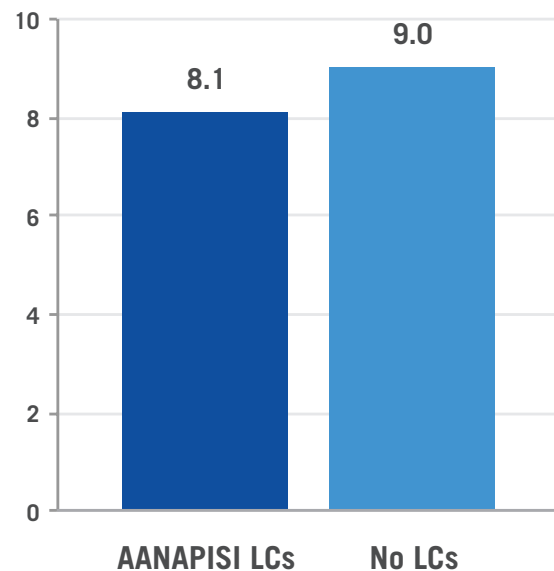
Learning communities are a signature best practice of De Anza College, so we also examined AAPI students in the AANAPISI LCs in contrast to comparable AAPI students in other developmental English LCs. We found similar educational outcomes among both groups of learning communities, which speaks to the effectiveness of wrap-around student support services coupled with culturally responsive pedagogy. Overall, the findings from De Anza's AANAPISI LCs reinforce previous studies that have found that learning communities are an effective mode of responding to challenges associated with developmental education, and shows that this approach also has value for engaging AAPI students with academic needs related to developmental education in particular.¹⁹

Figure 1.3
Percent of Students Who Earned an Associate's Degree



Note: $\chi^2_{(1)} = 7.35, p < .01$

Figure 1.4
Average Number of Terms to Associate's Degree Attainment



Note: $t(170) = 1.68, p < .10$

LEARNING COMMUNITIES

Learning communities (LCs) integrate learning across courses to engage students academically and socially with the goal of improving learning and increasing positive educational outcomes. While studies have found LCs to be an effective tool in higher education, it is important to note that not all learning communities are the same.²⁰ LC models range from classroom-based cohort approaches in a single classroom²¹ to cohort-based models in virtual learning communities (VLCs)²² and living-learning communities.²³ Even within each of these models, the curricula can vary from one institution to another.

What is unique about the AANAPISI LCs at De Anza is how the college incorporates culturally relevant curriculum, which has been found to be an effective pedagogical practice, especially in multicultural learning environments.²⁴ Culturally relevant pedagogies are teaching practices that focus on collective empowerment

and the utilization of students' cultures as a vehicle for learning. They have been found to develop a broader sociopolitical consciousness that allows students to critique cultural norms, values, and institutions that produce and maintain social inequities.²⁵

In De Anza's IMPACT AAPI LC, students read texts written by AAPI authors and classroom themes were tied to the current and historical issues in their communities, a practice that has been found to be effective because it situates learning in an individual's lived experience.²⁶ De Anza also utilizes complimentary approaches to improving educational outcomes for other ethnic minority students in developmental education, such as the Puente Program for Latino students and the Sankofa Scholars Program for Black students, which also infuse culturally relevant pedagogies.

CITY COLLEGE OF SAN FRANCISCO: INSTITUTIONAL PROFILE

City College of San Francisco (CCSF) is among the oldest and largest two-year public community colleges in the nation. Established in 1935, the college now includes nine campuses and various satellite campuses scattered throughout the city. CCSF is critical for “students without adequate monetary resources who want to obtain a college education; students who have to make up academic deficiencies in order to gain access to a college education; and students who want to enroll in semi-professional training programs to enter vocational fields.”²⁷ AAPI students make up a significant percentage of CCSF’s total enrollment (38.7 percent) and there are notable programmatic efforts to support them on campus. One distinctive feature is the Asian Pacific American Student Success (APASS) Center, founded in 2004 after the college learned that nearly 40 percent of the students on academic probation were AAPIs. The APASS Center provides support for students through early intervention and counseling services in an environment that recognizes the cultural diversity within the larger AAPI community. Additionally, CCSF offers the Tulay “Bridge” Program, a learning community targeted toward Filipino Americans. Tulay integrates Filipino-centered curriculum, counseling services, basic skills support, and peer mentoring.

Year Founded:	1935
Location:	San Francisco, CA
Carnegie Classification:	“Public Urban-Serving” and “Very Large”
Total Enrollment:	48,279 students
Full-Time Students:	41.3%
First-Generation Students:	73.0%
Percent Female:	52.9%
Race/Ethnicity:	Asian (32.8%) Native Hawaiian or Other Pacific Islander (0.8%) White (25.8%) Hispanic/Latino (20.6%) Black or African American (9.2%) American Indian or Alaska Native (0.3%) Two or More Races (3.6%) Race/Ethnicity Unknown (3.5%) Non-Resident Alien (3.3%)
Largest AAPI Sub-Groups:	Chinese (55.4%) Filipino (18.5%) Vietnamese (5.6%)
Average Class Size:	30 students
Term System:	Semester
AANAPISI Website:	www.ccsf.edu/Offices/APASS/stem/

CITY COLLEGE OF SAN FRANCISCO: AANAPISI STEM PROGRAM

With funding from an AANAPISI grant, CCSF created their AANAPISI STEM program that aimed to increase the transfer rate of AAPI students in the calculus-based science majors. The program was created as a result of an internal evaluation that indicated that AAPI students were struggling academically in these majors due to poor academic preparedness, lack of financial resources, and difficulties in gateway courses (e.g., elementary algebra). Both a program and a dedicated site, the AANAPISI STEM program is an academic space that provides a supportive community and a variety of targeted services, including tutoring and study groups, supplemental instruction, priority registration for impacted STEM classes, internship and research opportunities, and special events for students in the program. Support also includes dedicated counselors, specialized tutoring, additional core course sections, and a book loan program. The services offered were determined by a group of faculty and staff who were interested in infusing culturally-responsive approaches to serving low-income AAPI students.

The AANAPISI STEM program had three explicit goals:

- Increase the participation of AAPI students underrepresented in STEM majors.
- Improve the pass rates among students in STEM majors.
- Reduce time to complete major and improve transfer rates.

PEER Assessment of AANAPISI STEM

We studied AAPI students in the AANAPISI-funded STEM program in comparison to a matched cohort of non-participants, with a particular focus on academic performance, student persistence, credit accumulation, degree or certificate attainment, and transfer rates to four-year institutions. Propensity score matching was used to ensure that participants in the AANAPISI STEM program and the comparison group were similar in their baseline characteristics prior to assessing differences in the outcomes they experienced. (The characteristics of the AANAPISI STEM program students and the comparison group at the “baseline” can be found in the Technical Appendix).

AAPI STUDENTS IN STEM

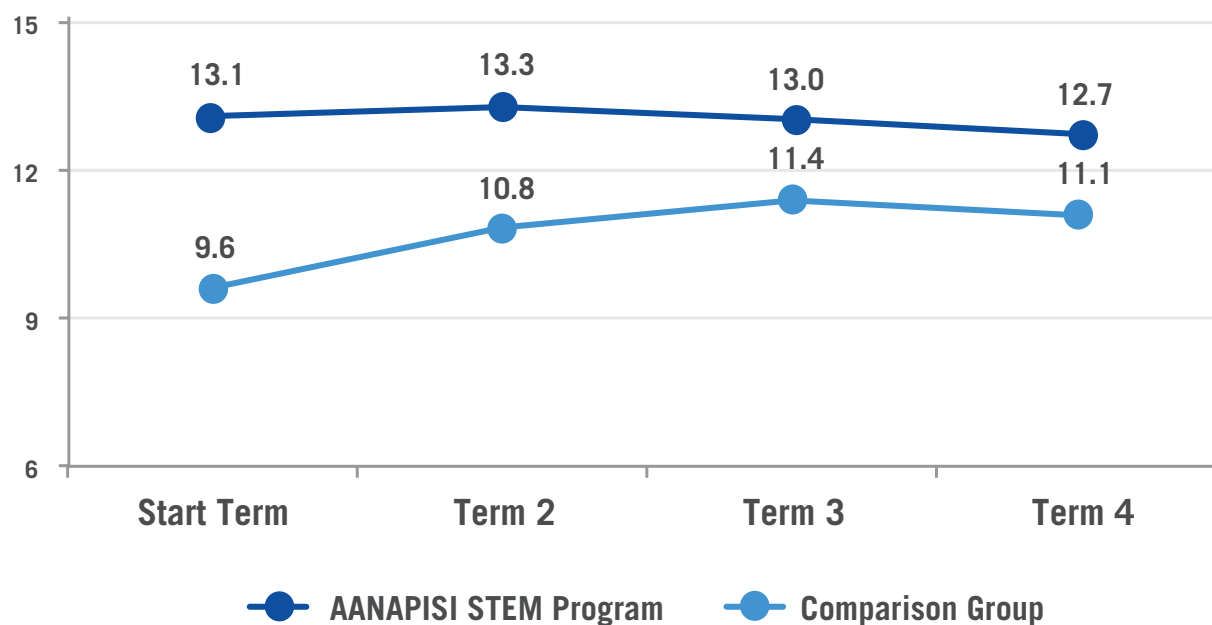
Minority serving institutions (MSIs) are critical sites for strengthening sectors of the economy where the demand for jobs are on the rise, such as in the science, technology, engineering, or mathematics (STEM) fields. Unfortunately, the National Science Foundation, a significant engine for minority STEM efforts, does not consider AAPIs as an “underrepresented group,” thereby excluding them from grants, fellowships, and efforts to support MSIs. These policies are likely driven by a perception of high participation and universal success of AAPIs in STEM fields, yet overlook challenges and barriers that exist for many AAPI sub-groups. At City College of San Francisco, for example, many AAPI students are struggling academically in STEM courses due to poor academic preparation, a lack of access to resources, and difficulty with gateway courses. While a high percentage of all AAPI students enroll in remedial math, only 56 percent continue to the next level, and only 30 to 35 percent reach transfer-level math.

AANAPISI STEM program students attempted more academic credits per term and enrolled in more academically rigorous coursework.

Research indicates that students who attempt more credits have a greater likelihood of completing college and finishing in fewer terms.²⁸ Building on this line of inquiry, we examined credit accumulation. Our analysis indicates that in the first term of the intervention, the AANAPISI STEM program students attempted more credits than students in the comparison group (13.1 credits vs. 9.6 credits) (Figure 2.1). When examining outcomes over four terms, we also found that compared to AAPI students who did not participate in the program, AANAPISI STEM program students continued to attempt more academic credits per term.

While AANAPISI STEM program students attempted more credits, their mean GPA over four terms was lower than for the comparison group. The average term GPA was 2.97 for the AANAPISI STEM program students and 3.36 for the comparison group. This difference may be attributed to two possible reasons associated with a more rigorous and ambitious trajectory of courses. First, as noted earlier, AANAPISI STEM program students, on average, took a significantly higher number of credits each academic term, which created a higher academic load for AANAPISI STEM program students each term. Second, in order to transfer into a four-year institution, and in fewer academic terms, students had to enroll in a more rigorous set of courses in order to be prepared and be successful in transferring to STEM programs at four-year institutions.

Figure 2.1
Average Number of Credits Attempted Over Four Terms

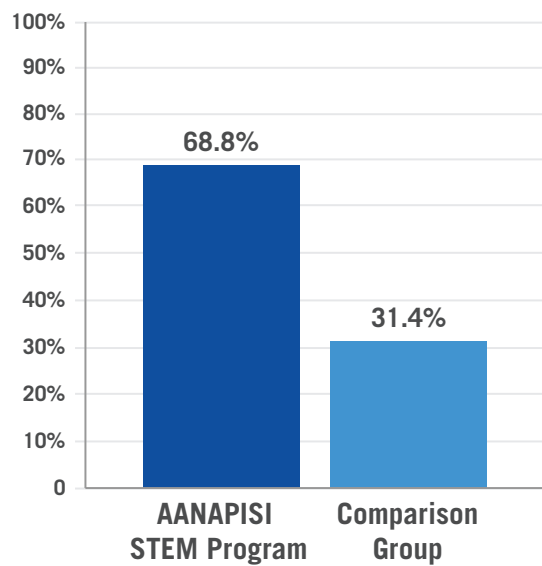


Note: Term 1: $t(322) = -6.51, p < .01$; Term 2: $t(306) = -6.18, p < .01$; Term 3: $t(268) = -4.47, p < .01$; Term 4: $t(248) = -4.10, p < .01$

AANAPISI STEM program students had a higher transfer rate to four-year institutions and transferred in fewer terms.

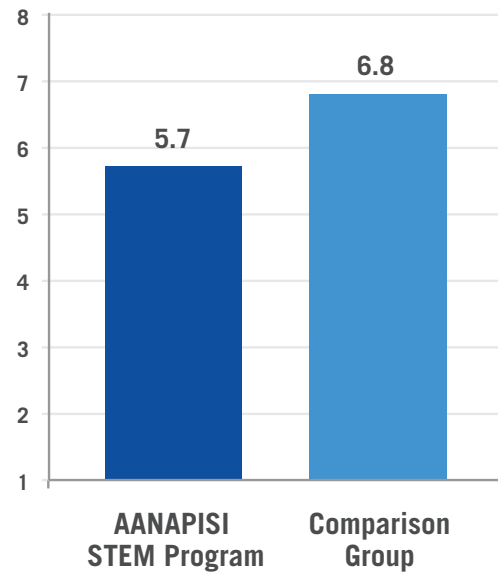
Upon examination of student status after four academic terms, we found that 68.8 percent of the AANAPISI STEM program students eventually transferred to a four-year institution compared to just 31.4 percent in the comparison group (Figure 2.2). Of those who did transfer, the AANAPISI STEM program students also transferred significantly faster than those who were not in the program, taking an average of 5.7 terms while the comparison group transferred in an average of 6.8 terms (Figure 2.3).

Figure 2.2
Percentage Transferring to a Four-Year Institution



Note: $\chi^2_{(1)} = 22.77, p < .01$

Figure 2.3
Average Number of Terms to Transfer to a Four-Year Institution



Note: $t(91) = 2.25, p < .05$

AANAPISI STEM program participants were more likely to transfer to a four-year institution without earning a degree. Among students in the participant group who transferred, two-thirds also earned associate's degrees. On the other hand, the majority of the comparison group graduated before transferring (94.4 percent) with three-quarters of these students earning associate's degrees and one-quarter earning certificates. However, it is noteworthy that when AANAPISI STEM program students transferred, they were more likely than students in the comparison group to pursue STEM baccalaureate programs at four-year institutions.

SOUTH SEATTLE COMMUNITY COLLEGE: INSTITUTIONAL PROFILE

Located on a hilltop, the South Seattle Community College (SSCC) campus blends low-slung modern buildings with the lush vegetation of the Pacific Northwest. Its distinctive features include a six-acre arboretum and a Chinese garden, amenities enjoyed by students, faculty, and the community. The campus describes itself as a “constantly evolving educational community dedicated to... preparing students to meet their goals for life and work.” Though its student body represents the diversity of Seattle, where AAPIs are the largest minority, SSCC did not have services or programs explicitly directed at this population until they received an AANAPISI grant. With support from AANAPISI funding, the campus established an AANAPISI Center and a Pacific Islander Study Group. The AANAPISI Center is a dedicated space in the library to academically engage and support AAPI students in particular, though it is open to all students. The Center has computer terminals to support school-related research projects and provides ready access to counselors as well as faculty tutors leading study sessions in high demand subject areas. The AANAPISI Center serves as the meeting space for the Pacific Islander Study Group, a faculty-led group that meets once a week during the quarter for students to discuss their coursework, collaborate on homework, and study together for examinations.

Year Founded:	1970
Location:	Seattle, WA
Carnegie Classification:	“Public 4-Year Primarily Associate’s” and “Small”
Total Enrollment:	9,163 students
Full-Time Students:	45.3%
First-Generation Students:	54.0%
Percent Female:	44.5%
Race/Ethnicity:	Asian (11.9%) Native Hawaiian or Other Pacific Islander (0.9%) White (45.0%) Hispanic/Latino (5.8%) Black or African American (12.4%) American Indian or Alaska Native (1.1%) Two or More Races (2.8%) Race/Ethnicity Unknown (14.9%) Non-Resident Alien (5.3%)
Largest AAPI Sub-Groups:	Vietnamese (37.0%) Chinese (16.0%) Filipino (13.0%)
Average Class Size:	23 students
Term System:	Quarter
AANAPISI Website:	www.southseattle.edu/programs/aanapisi/

SOUTH SEATTLE COMMUNITY COLLEGE: AANAPISI CLUSTERED LEARNING COMMUNITIES

In their AANAPISI grant proposal, SSCC identified several challenges faced by low-income AAPI students, including too few students persisting after the first year of enrollment, transitioning from developmental education to college-level coursework, transferring to four-year institutions, and earning degrees and certificates. We assessed the impact of the learning communities (LCs) for students in developmental courses as it was an AANAPISI-funded initiative directed toward meeting multiple goals identified by SSCC.

SSCC chose to use their AANAPISI support to pilot the LCs as their data had indicated that students in developmental education struggled to transition to college-level coursework. This trend was particularly pronounced among low-income AAPI students who tended to be English Language Learners.

- The LCs featured developmental coursework linked to a college success course, as well as access to tutoring and mentoring from peer navigators.
- Counselors taught the college success course and covered topics such as time management and study skills.
- Counselors worked closely with faculty teaching developmental education to enhance curricula, ensure the materials and assignments in each linked course reinforce one another, manage the peer navigators, and follow up with students outside of class.

While the levels of developmental education were equivalent for LC and non-LC students the students in the LCs had access to additional support in the form of a college success course, increased contact with counseling staff, and access to peer navigators. Students in the LCs also benefitted from gaining a sense of belonging and social support by being part of a cohort of students in linked courses.

PEER Assessment of the Learning Communities

We compared AAPI students in learning communities (LCs) to their AAPI student counterparts in a subsample drawn from students in the developmental courses who were not in learning communities (No LCs). We were interested in academic performance, transition to college-level math and English, persistence, pass rate (i.e., ratio of credits completed to credits attempted), and degree and/or certificate attainment. We used propensity score matching to ensure that the LC and comparison groups were similar in their characteristics before proceeding with analysis (see Technical Appendix for a detailed description of how students were recruited into the LCs and equivalent developmental education courses without LC supports).

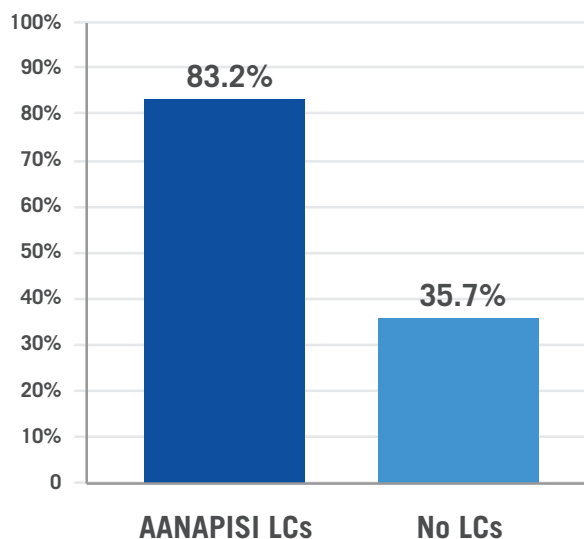
Students in developmental education struggled to transition to college-level coursework and this trend was particularly pronounced among low-income AAPI students who tended to be English Language Learners.

LC participants were more likely to transition from developmental to college-level courses and had a higher rate of persistence in the term following the intervention.

Basic skills courses, like math and English, often act as “gatekeepers” that prevent students from moving into college-level coursework.³¹ Providing intensive support through the LC structure enabled a significantly greater share of students to successfully transition to college-level coursework. As seen in Figure 3.1, an impressive 83.2 percent of the LC participants transitioned to college-level coursework compared to 35.7 percent of students in the comparison sample in the 2008-2011 timeframe.

LC participants’ persistence from term to term was also greater than their peers in the comparison group. The gap between the cohorts is most significant in the term immediately following the intervention. In that term, 91.0 percent of AAPI students in the AANAPISI LCs maintained continuous enrollment, compared to 37.0 percent among the comparison group. However, between the first and second terms following the intervention, persistence for students in the AANAPISI LCs declined by 28 percentage points to 62.5 percent, compared to a decline of only seven percentage points

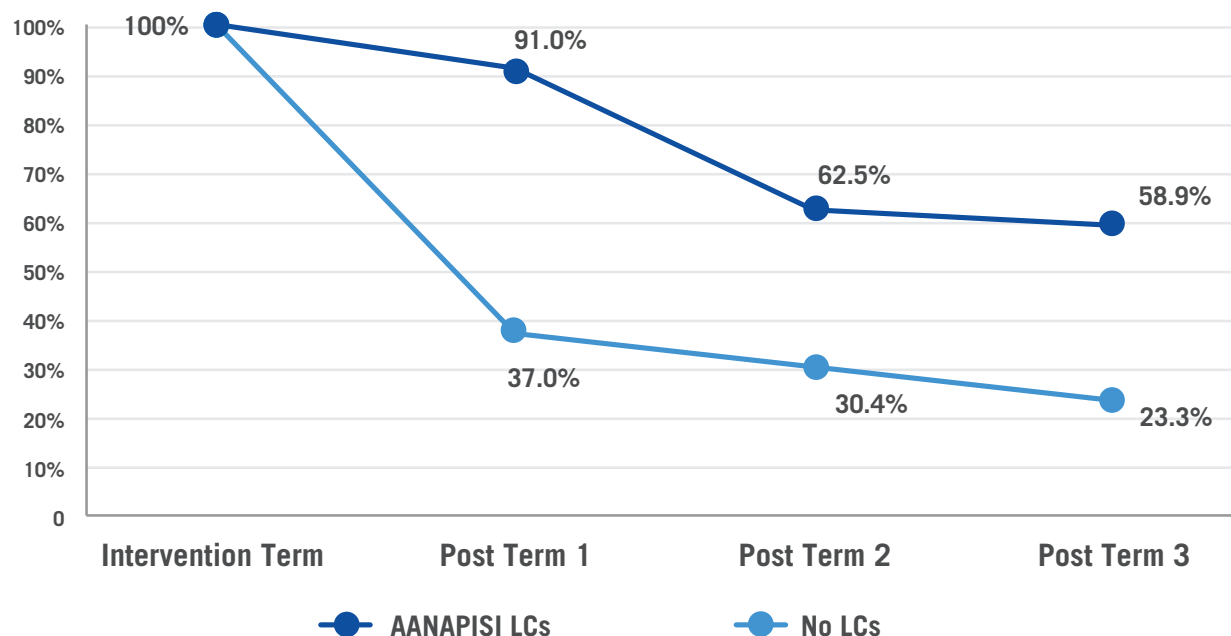
Figure 3.1
Percent Transitioned from Developmental to College-Level Courses, 2008-2011



Note: $\chi^2_{(1)} = 83.90, p < .01$

to 30.4 percent among the comparison group. By the third term following the intervention, persistence among students in the AANAPISI LCs leveled off at 58.9 percent compared to 23.3 percent for the comparison group (Figure 3.2). The PEER study’s

Figure 3.2
Persistence Three Terms Following Intervention



Note: post term 1, $\chi^2_{(1)} = 33.28, p < 0.01$; post term 2, $\chi^2_{(1)} = 10.40, p < 0.01$; post term 3, $\chi^2_{(1)} = 14.32, p < 0.01$

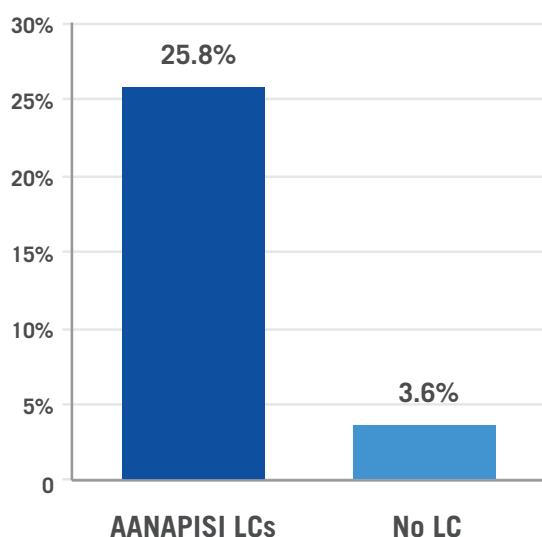
findings are similar to other studies that have found that students with developmental needs benefit from the structure and social cohesion offered by LCs, though their long-term impact diminishes over time.³²

LC participants were more likely to graduate with an associate's degree or certificate.

The differential rates of persistence between the participant and comparison group had an impact on

graduation rates. Students in the AANAPISI LCs were much more likely to graduate with associate's degrees or certificates compared to the comparison group, as seen in Figure 3.3. Between 2008 and 2011, 25.8 percent of LC participants graduated with a degree or certificate after participating in the intervention, compared to a graduation rate of 3.6 percent for their counterparts who did not participate in the intervention.

Figure 3.3
Percent of Students Graduating with a Degree or Certificate, 2008–2011



Note: $\chi^2_{(1)} = 11.95, p < .01$

AANAPISI-funded learning communities were critical sites for improving the likelihood of students graduating from college with a degree or certificate. Compared to those who did not participate, participants in the AANAPISI-funded learning community were more likely to remain continuously enrolled in the term following the intervention and were more likely to transition to college-level coursework over time. These factors combined with the quality of advising students received in the learning communities, which focused in part on increasing degree aspirations, may have played a role in participants' higher rates of graduation. SSCC's success in piloting the learning communities with AANAPISI support affords them a research-based strategy to enhance outcomes for its large and growing population of AAPI students in a sustainable manner.

PROJECTIONS FOR CAMPUS-WIDE IMPACT

In the prior sections, we established that AANAPISI-funded programs at each of our campus partners had a measurable impact on short-term and long-term outcomes. This section builds on these findings to estimate the potential impact for a larger, campus-wide effort to bring these programs to scale. Specifically, we began with a gap analysis to identify the number of students served by these programs and the number of students who met the same qualifications for participating in the program. For the latter group of students, we calculated the numerical increases in short-term and long-term outcomes based on the proportional changes we found in the previous section.

Gap Analysis for Scaling Up Programmatic Efforts

For the gap analysis, we see that each campus has the potential for reaching a larger group of students who are characteristically similar to students who were served under the existing programs. For example, at De Anza College there are an additional 872 AAPI students who tested into developmental English during the same terms the AANAPISI-funded course was offered (see Table 4.1). For CCSF, there were 671

additional AAPI students who majored in STEM and started their programs at the same time as the students in the AANAPISI-funded STEM program. For SCCC, there were 1,360 additional AAPI students enrolled in developmental courses during the terms the AANAPISI-funded learning communities were offered. Across these three campuses, there is a gap of 2,903 additional AAPI students who could conceivably be served if these AANAPISI-funded programs were brought to scale, providing great potential to expand the impact.

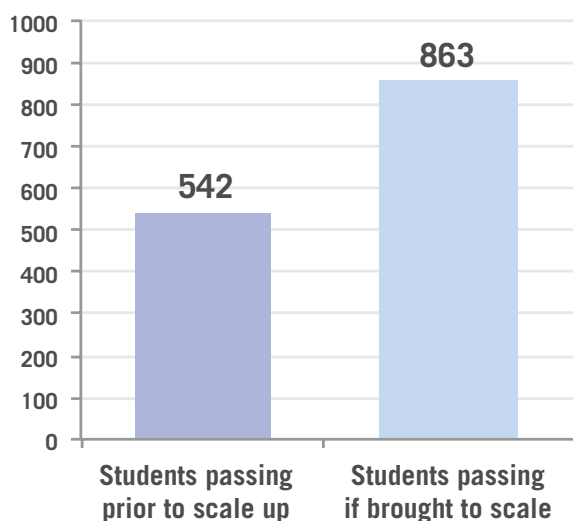
Table 4.1: Gap Analysis for Scaling Up AANAPISI-Funded Programs

Program	Number of AAPI students in AANAPISI programs	Number of AAPI students who qualified for AANAPISI programs	Service gap
De Anza: LCs	131	1,003	872
CCSF: STEM	165	836	671
SSCC: LCs	82	1,442	1,360
Total	378	3,281	2,903

Campus-Wide Impact on Student Outcomes

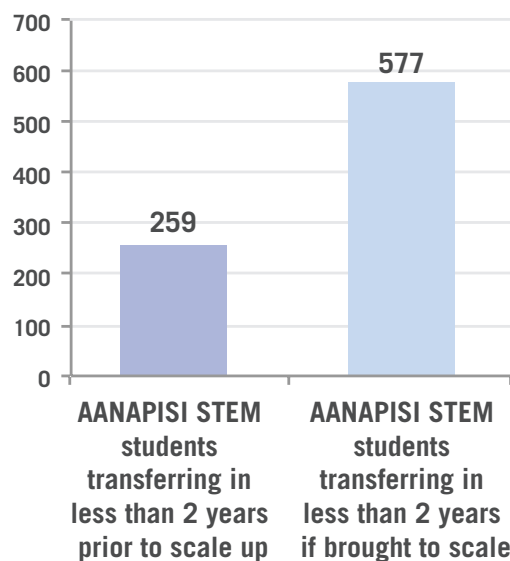
Our next level of analysis focuses on the potential change in student outcomes if we assume similar results for students who were not currently served by these AANAPISI-funded programs. For example, AAPI students at De Anza College who participated in AANAPISI-funded LCs had a passing rate of 86 percent in development English, compared to a passing rate of 54 percent for AAPI students not in any LCs. For the latter group, there were 542 AAPI students who were passing their developmental English course. If the AANAPISI-funded intervention were brought to scale, we project that 863 AAPI students, rather than 542 AAPI students, would pass developmental English, which is an improvement of 59 percent (Figure 4.1). This is also the number and proportional change in the number of students transitioning to college-level English courses.

Figure 4.1
Number of Students Passing
Developmental English Before and
After Scale Up at De Anza College



For CCSE, the two-year transfer rate for AAPI students in AANAPISI STEM program was 69 percent, which was greater than the two-year transfer rate of 31 percent among the general population of AAPI students enrolled in STEM. For the general population of AAPI students enrolled in STEM who started the same year as the AAPI students enrolled in the AANAPISI STEM program, there were 259 students who transferred within two years. We estimate this number would increase to 577 AAPI students if the

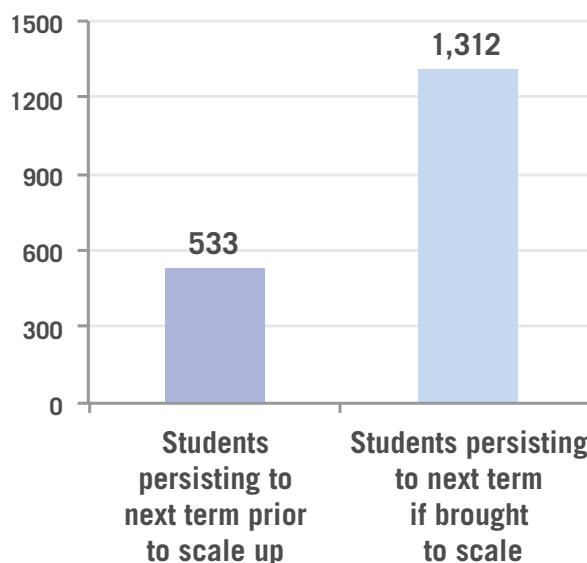
Figure 4.2
Number of Transfers in Two Years
Before and After Scale Up at CCSF



AANAPISI-funded STEM program were brought to scale, which is an increase of 123 percent (Figure 4.2).

For SSCC, AAPI students who participated in the AANAPISI-funded LCs were more likely to maintain enrollment one term following the intervention, compared to AAPI students who did not participate in the LC program (91 percent vs. 37 percent respectively). If the program could reach this latter group, the number of

Figure 4.3
Number Persisting One Term Following
Intervention Before and After Scale Up at SSCC



AAPI students who would persist one term following the intervention could potentially increase from 533 to 1,312, which represents an increase of 146 percent (Figure 4.3).

A primary goal of the AANAPISI program is to afford campuses an opportunity to experiment with practices that help students reach their full degree-seeking potential. This analysis demonstrates the potential impact on the number of AAPI students who would transition from developmental to college-level English at De Anza, the number of AAPI students who would transfer to four-year institutions in two years or less at CCSF, and the number of AAPI students at SSCC who

would persist one term after the intervention if their respective programs were brought to scale.

These findings underscore the importance of ongoing assessment to guide institutional decision-making processes in order to maximize the impact of increased resources and opportunities. The significant improvement in outcomes for the students who participated in the programs funded by the AANAPISI grant and the potential campus wide impact of fully-scaled programs demonstrate the critical role that MSIs play in achieving the nation's higher education agenda.

LESSONS LEARNED AND LOOKING AHEAD

Through a longitudinal analysis of three AANAPISI-funded programs, this report provides higher education policymakers, practitioners, and researchers with a deeper understanding of how MSIs are using their federal funding to improve student outcomes. Each of the programs we evaluated, all funded exclusively by their AANAPISI grants, were targeted interventions to respond to specific challenges that campuses identified as barriers to student success—the transition from basic skills to college-level courses, the persistence of students from one academic term to the next, decreasing time to degree attainment, and improving transfer rates. In the case of CCSF, there was a deliberate focus on addressing these issues for AAPI students pursuing STEM fields.

Notable findings include the following:

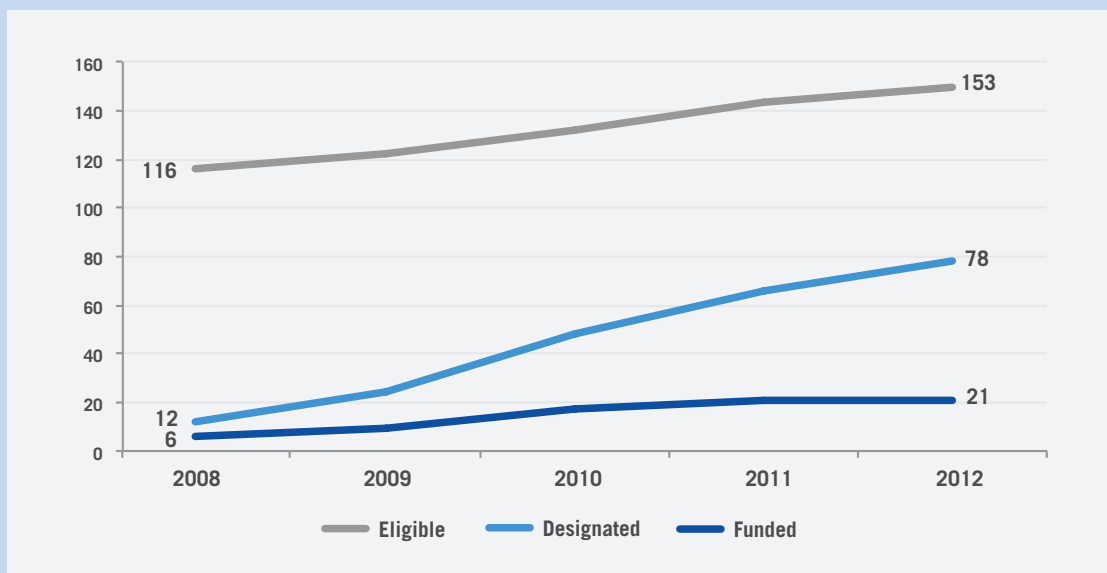
- The assessment of AANAPISI-funded learning communities at De Anza and SSCC show that these programs are having success with helping students **transition from basic skills to college-level courses**. Students in these learning communities also had a better rate of persistence to the term following the intervention.
- Across all three campuses, students in the AANAPISI-funded programs all had **higher degree attainment rates** relative to students in the comparison group. Students in the intervention also attempted more credits, had a shorter time to completion, and were more likely to earn an associate's degree instead of a certificate.
- At De Anza and CCSF, students in the AANAPISI-funded programs also had a greater likelihood of **transferring to a four-year institution** relative to the comparison group. When they transferred, students in the interventions did so in less time than the comparison group.
- All of the AANAPISI-funded programs studied had a particular emphasis on **reducing disparities in educational outcomes** for their AAPI students. Scaling up the practices of AANAPISI-funded programs could have a measurable impact on improving outcomes for targeted populations, which is critical information for recruitment strategies, programmatic efforts, and how campuses determine their desired outcomes.

THE RISE OF AANAPISIs

In 2008, there were 116 institutions eligible to be designated as AANAPISIs, 12 that were designated, and six institutions that received funding. Four years later, in 2012, the number of eligible AANAPISIs increased by 31.9 percent to 153 institutions, which is impressive growth considering the eligibility is a formula based in part on the representation of AAPI students. Also noteworthy is the five-fold increase in the number of designated

AANAPISIs over the same time period. However, the funding level for the AANAPISI program has not kept pace with student growth and interest in the program. By 2012, only 21 institutions had received federal funding. Funding for the federal AANAPISI program has only reached 14 percent of the institutions eligible to be AANAPISIs, and 27 percent of the designated institutions.

The Number of Eligible, Designated, and Funded AANAPISIs, 2008–2012



Source: U.S. Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System (IPEDS).
Note: The designated and funded AANAPISIs are reported cumulatively, not per year.

These findings empirically substantiate a few key points that are critical for expanding the broader body of research on MSIs:

- MSI funding is being leveraged by AANAPISIs to pursue innovative practices that place equitable outcomes for low-income AAPI students at the center of their efforts.
- MSI-funded programs have a measurable impact on short-term and long-term outcomes for low-income AAPI students, including course performance, credit accumulation, transition to college-level courses, persistence, degree attainment, and transfer from community college to four-year institutions.
- The cumulative impact of AANAPISIs, as well as all MSIs, is a research agenda that should be pursued further. The impact of these programs should be considered in the context of the college completion agenda and other national higher education priorities.

This study contributes to a broader effort to spotlight the ways in which government and philanthropy can foster and support innovation in higher education, especially for institutions that serve disproportionately high concentrations of low-income students of color. More importantly, this study is critical to responding to the absence of rigorous empirical evidence that links MSI funding to student outcomes. The take-away is simple and straightforward: MSIs are critical sites for pursuing our national higher education agenda and funding for MSIs makes a significant difference in strengthening the capacity of institutions to improve outcomes for low-income minorities.

Implications for Practitioners

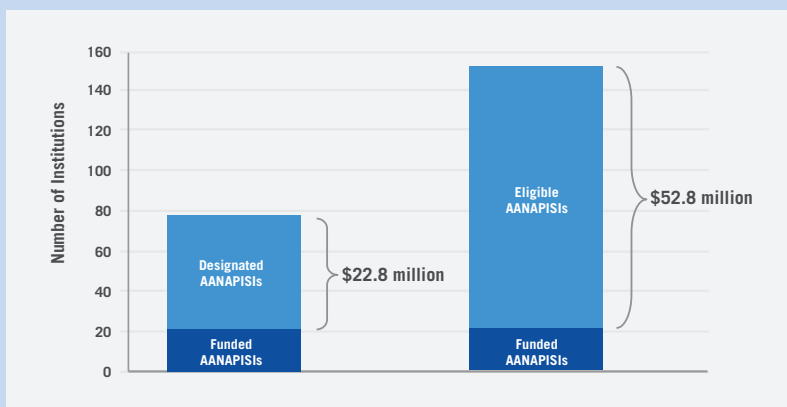
- These interventions were successful because they were designed in response to a specific need or challenge. The goals were narrow and targeted, the desired outcomes were clear, and the activities were all tied to maximizing the potential of the intervention.
- Establishing a culture of inquiry is critical for capacity-building efforts. This includes having institutional researchers as a part of the campus leadership team collaborating with faculty, staff and administrators in the process of identifying needs and challenges, and determining program goals, strategies, and desired outcomes.
- Evidence of success should drive efforts to replicate and scale up programs. These findings should also be shared with a broader audience outside of the institution.
- The findings from assessments should be discussed widely between different constituents on campus to generate strategic and thoughtful ways to address broader institutional objectives.

FUNDING GAP FOR AANAPISIs

Current budget appropriations for the program do not meet the need or demand. It would require an additional \$22.8 million per year over the current level of funding to provide grants to all designated AANAPISIs. To fund all eligible AANAPISIs would require an additional \$52.8 million per year over the current level

of funding. This shortfall represents a missed opportunity considering the number of institutions interested in pursuing resources that respond to the unique needs of their low-income students and the demonstrated success of AANAPISI programs such as the ones in this report in improving student outcomes.

The Funding Gap for Designated and Eligible AANAPISIs in 2013



Source: U.S. Department of Education, National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System (IPEDS); U.S. Department of Education, Office of Postsecondary Education.
Note: Analysis used a multiplier based on the current level of funding for AANAPISIs.

Implications for Policymakers

- Money matters for MSIs – targeted investments can drive innovation, support institutional change, and help improve degree attainment rates.
- Policymakers should consider ways to incentivize the scaling up of programs for which there is a measurable impact of the MSI-funded interventions.
- In order for MSIs to reach their full potential they need support with assessment so they can better understand and refine efforts to improve institutional performance.
- Government and foundations should invest in partnerships that generate innovative and effective practices; there is a critical opportunity to do this with MSIs.

THE FUTURE TRAJECTORY OF PEER

The Partnership for Equity in Education through Research (PEER) is a collaborative research between the Asian & Pacific Islander American Scholarship Fund (APIASF) and the National Commission on Asian American and Pacific Islander Research in Education (CARE) to leverage research on AANAPISIs that will strengthen institutional capacity, mobilize the community for increased support, and accelerate AAPI student success. We see the current report, alongside other work we have produced in the first two years of the project, as phase one of a larger initiative. The trajectory of our work will build on what we have learned to date and expand our efforts to collaborate and impact a larger group of institutions.

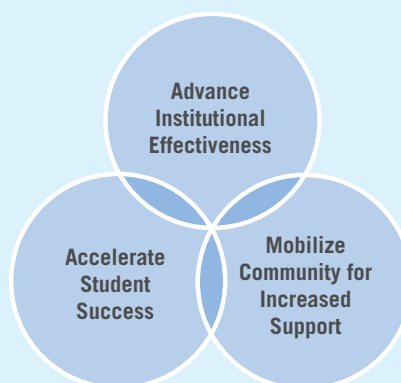
We are interested in focusing our attention on two clusters of AANAPISIs:

- **Clusters of two-year and four-year AANAPISIs** – there is great potential to strengthen the pipeline between two-year and four-year AANAPISIs. We want to work with these campuses to improve their capacity to better support the transition of AAPI students from one institution to another.

- **Regional clusters** – there is a critical need for expanding support for AANAPISIs outside the West Coast, including the Pacific region, Northeast, South, and Midwest. We want to build relationships with these institutions and get them connected with a broader national effort, including better connections to other MSIs in their local regions.

With a broader set of AANAPISIs, we will expand our assessment efforts for examining institutional performance, share both curricular and co-curricular innovations, and promote innovative policies and programs that accelerate success among low-income AAPI students.

PEER Strategy to Improve AAPI Student Outcomes



TECHNICAL APPENDIX

We gauge institutional performance by studying the added value of the AANAPISI-funded programs relative to student success, which included measures of academic performance, credit accumulation, persistence, degree attainment, and transfer from community college to four-year institutions. Because our research was conducted a priori, we utilized a research design that enabled us to compare AAPI students in AANAPISI-funded programs (participant) to a representative comparison group of AAPI students (comparison group), derived from using propensity score matching (PSM) analysis. PSM reduces the bias due to confounding variables in arriving at estimates of treatment effects.³³

This appendix is divided into four sections. First, we describe the data sources utilized for our analysis. Next, we present the propensity score matching process for each campus. Third, we describe the data analysis procedure, discussing the descriptive and inferential statistics used to ascertain short-term and long-term outcomes. Finally, we explain the recruitment strategies that each campus used to encourage student participation in their programs in order to assess potential selection bias in the intervention groups and the appropriateness of our comparison groups.

Data Sources

Our analysis relied on de-identified student records that contain information on student demographics, course-taking behavior, course performance, and transfer and degree attainment. In these studies, we focused on both short-term and long-term measures of success between the participant and comparison groups. We acknowledge that these measures should not be considered exhaustive definitions of student success.³⁴ However, these conventional measures of institutional performance are a primary concern of policymakers relative to national higher education policy priorities.³⁵ The research team received institutional data from each campus, which included:

Student Characteristics. The ways in which institutions documented some of these characteristics

(e.g. ethnicity, competency) varied by campus, but generally consisted of:

- *Demographic Data:* Race and ethnicity, gender, socioeconomic status (SES), immigrant background information (i.e., nativity and citizenship status), and age.
- *Baseline Schooling Data:* Full-time or part-time status, start date, and developmental needs assessments.

Short-Term Outcomes. Transition from developmental to college level courses, credit accumulation, and course performance (i.e., grade point average)

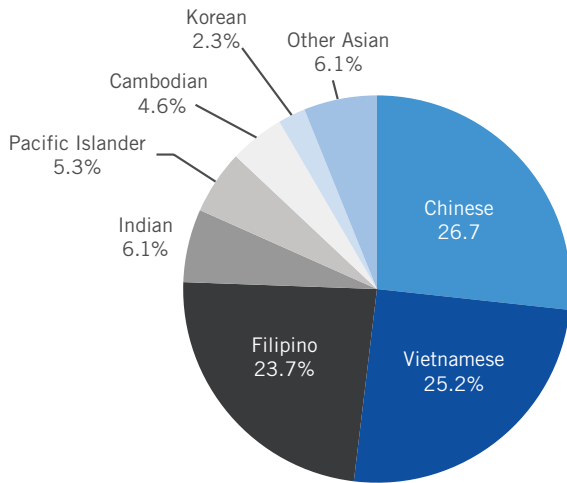
Long-Term Outcomes. Persistence from one semester to the next, degree attainment, and transfer from community college to four-year institutions

Preparation of the Comparison Groups: Propensity Score Matching

De Anza College

Propensity score matching was used to construct a comparison group for program participants in order to assess for differences in outcomes. The participant group comprised of 131 AAPI students who took part in a learning community specifically tailored to AAPI students from spring 2009 to spring 2012. The comparison group was drawn from

AAPI Ethnic Distribution of Participant Group at De Anza College



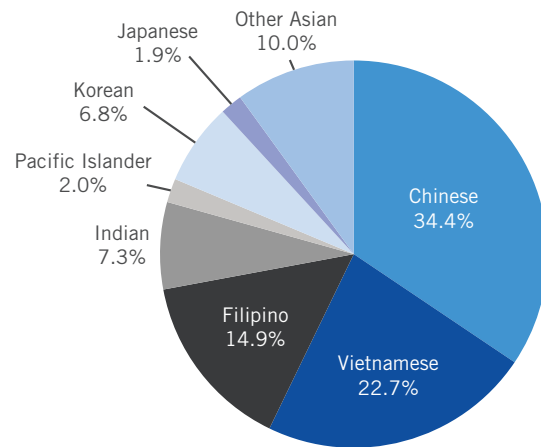
872 AAPI students who did not participate in any learning community, but who tested into the same developmental English course.

The propensity score matching was done based on the following student characteristics: age, gender, Pell Grant recipient status, first term of enrollment, the academic period of intervention, and ethnicity. A logistic regression was used to generate the predicted propensity score of each student based on these characteristics, and the nearest neighbor of each participant without replacement was found from the full comparison group. For those with the same predicted propensity score, the matched student was chosen randomly. Propensity score matching was conducted separately for the participant group and the comparison group. The resulting matched groups comprised of 118 students from the comparison group who most closely matched observable characteristics of the participant group. Missing data for several variables accounted for the incomplete match.

The logistic model, where y is a binary variable for program participants and *firstterm*, *academicperiod*, and *ethnicity* consist of multiple binary variables for each term and ethnicity, is represented as follows:

$$y = \beta_0 + \beta_1(\text{age}) + \beta_2(\text{male}) + \beta_3(\text{Pell}) + \beta_4(\text{firstterm}) + \beta_5(\text{academicperiod}) + \beta_6(\text{ethnicity}) + \beta_7(\text{fulltime}) + \varepsilon$$

AAPI Ethnic Distribution of Comparison Group at De Anza College



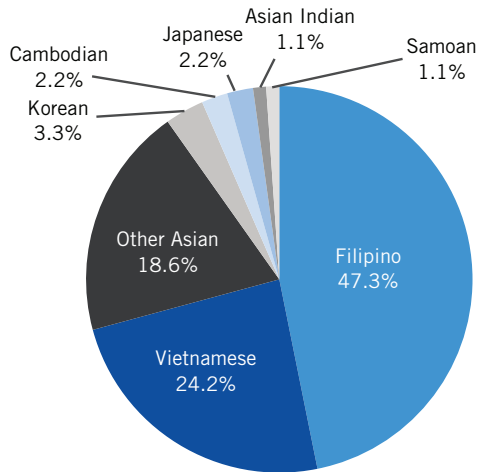
City College of San Francisco

In the case of CCSE, the participant group comprised of 165 AAPI students who began their studies from fall of 2008 to spring of 2011. Students who first enrolled in the summer were excluded. The full comparison group was made up of 670 AAPI students. All participant and comparison group members concentrated in science, technology, engineering, or mathematics (STEM) as their primary field of study.

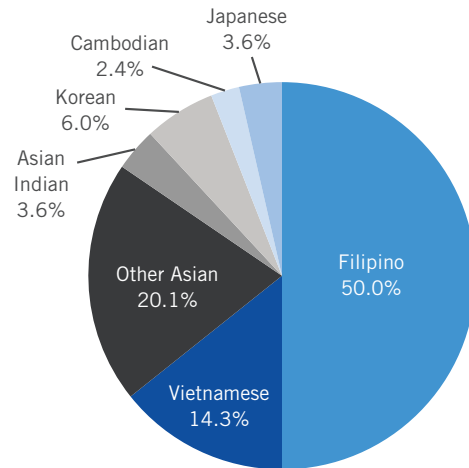
The propensity score matching was done based on the following student characteristics: age, gender, Pell Grant recipient status, first term of enrollment, and ethnicity. Specific field of study in the match was ultimately excluded due to insufficient data. A logistic regression was used to generate the predicted propensity score of each student based on these characteristics, and the nearest neighbor of each participant without replacement was found from the full comparison group. For those with the same predicted propensity score, the matched student was chosen randomly. The resulting matched group comprised of 165 students from the comparison group who most closely matched the observable characteristics of the participant group.

The logistic model where y is a binary variable for program participant status, and *firstterm* and *ethnicity*

AAPI Ethnic Distribution of Participant Group at City College of San Francisco



AAPI Ethnic Distribution of Comparison Group at City College of San Francisco



consist of multiple binary variables for each term and ethnicity was estimated as follows:

$$y = \beta_0 + \beta_1(\text{age}) + \beta_2(\text{male}) + \beta_3(\text{Pell}) + \beta_4(\text{firstterm}) + \beta_5(\text{ethnicity}) + \varepsilon$$

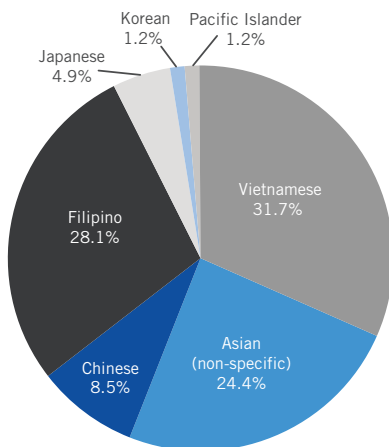
South Seattle Community College

The participant group comprised of 82 AAPI students who participated in AANAPISI-funded learning communities between fall 2008 and spring 2011. The full population of AAPI students enrolled in developmental courses during this time was 1,404. The propensity score matching was done based on several characteristics:

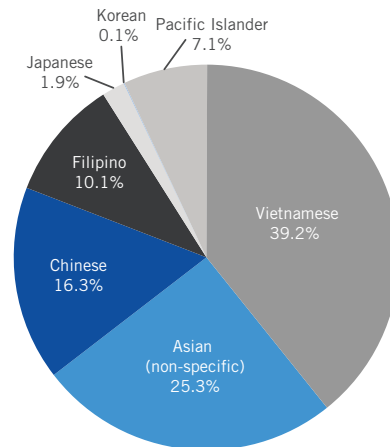
age, gender, economically disadvantaged, first term of enrollment, academic term of intervention, and ethnicity.

A logistic regression model below was used to generate the predicted propensity score of each student based on these characteristics, and the nearest neighbor of each participant with replacement was found from the full comparison group. For those with the same predicted propensity score, the matched student was chosen randomly. The resulting matched group comprised of 55 students (with replacement) who most closely matched the participant group on the above observable characteristics.

AAPI Ethnic Distribution of Participant Group at South Seattle Community College



AAPI Ethnic Distribution of Comparison Group at South Seattle Community College



A logistic model, where y is a binary variable for participation in the intervention and treated term and ethnicity consist of multiple binary variables for each term and ethnicity:

$$y = \beta_0 + \beta_1(\text{age}) + \beta_2(\text{male}) + \beta_3(\text{economicallydisadvantaged}) + \beta_4(\text{firstterm}) + \beta_5(\text{academicperiod}) + \beta_6(\text{ethnicity}) + \varepsilon$$

Data Analysis Procedure

For each program, across the three campuses, descriptive analyses were conducted to determine if differences in short-term and long-term outcomes were significantly different for students who participated in interventions and students in the comparison groups. These include measures associated with transition to college level courses, outcomes in GPA and credit accumulation in the first term following the intervention, transferring to a 4-year institution, degree attainment, and type of degree conferred. To examine differences associated with change over time, regression analyses were utilized, where y refers to the following outcomes of interest: GPA, credits attempted or earned, or student pass rate. Additionally, t represents time and j represents the terms that follow the intervention.

$$y = \beta_0 + \beta_1(\text{treated}) + \beta_{t,j}(\text{postterm}_{t,j}) + \varepsilon$$

To estimate the effect of the intervention on short-term and long-term outcomes, we employed logistic regression analyses with covariates associated with individual characteristics in the propensity score match (e.g. variables associated gender, full time status, Pell grant, etc.). These characteristics varied slightly depending on the campus but generally followed the model below, where y is transition to college level work, degree attainment or transfer to a four-year institution. The estimation model was as follows:

$$y = \beta_0 + \beta_1(\text{treated}) + \beta_2(\text{gender}) + \beta_3(\text{limitedEnglish/foreignborn}) + \beta_4(\text{econdisadv/Pell}) + \beta_5(\text{fulltime}) + \varepsilon$$

To estimate the effect of the intervention on student GPA, credits attempted or earned, and pass rate (credits earned/credits attempted) the following model

was employed, where y is the outcome of interest. The estimation model was as follows:

$$y = \beta_0 + \beta_1(\text{treated}) + \beta_2(\text{female}) + \beta_3(\text{limitedEnglish/foreignborn}) + \beta_4(\text{econdisadv/Pell}) + \beta_5(\text{fulltime}) + \beta_6(\text{postterm1}) + \beta_7(\text{postterm2}) + \beta_8(\text{postterm3}) + \varepsilon$$

Also included in some specifications were time fixed effects for each term in order to capture the effect of the intervention on student achievement over time, particularly in the academic terms directly following the intervention. Note that the excluded term here, in order to avoid multicollinearity, is the intervention term, so estimated effects on post term variables are in comparison to the term of intervention.

Recruitment Strategies and Selection Bias

In this section, we describe in detail the recruitment strategies employed at each campus, and assessed the extent to which the process may have influenced the success of these efforts. From a technical standpoint, assessing the “randomness” of the selection process for the intervention is important for estimating the extent to which we can be confident that our comparison groups are comparable to the participant groups at the baseline. For example, if one section of a course that is part of the intervention is among several sections of the same course, and students can just as likely end up in the intervention section as in any other section, we may consider the selection bias to be much lower than if students were specifically targeted and courted or selected into a particular section.

Across all three campuses, targeted recruitment strategies were utilized with varying levels of success. As such, one limitation that we acknowledge is that we cannot determine with full confidence the extent to which selection bias may have played a role at each campus. That said, qualitative findings suggest that many participants ended up in the interventions as a result of convenience (e.g. scheduling and availability) as opposed to other factors. We are confident that, while imperfect, our matched comparison groups offer worthwhile comparisons. The recruitment procedures are described in more detail for each campus below.

De Anza College

The AANAPISI-funded IMPACT AAPI LinC learning community course was centered around the developmental English course LART 211. The LART 211 course offered multiple sections each term, and the intervention took place in one of those course sections. Students who took the English placement test and placed two levels below college-level English were eligible for the AANAPISI-funded IMPACT AAPI LinC learning community. Each academic year, during the summer months of July and August, the LinC coordinator at De Anza received a list of eligible students from the Institutional Research office, which includes the race/ethnicity and contact information for all students who place two levels below college-level English. Thus, these students met the eligibility criteria for recruitment into the intervention. It was from this pool that both the intervention group and the comparison group were drawn for the purpose of our analysis. The LinC coordinator recruited students using a recruitment email, which contained a flyer congratulating students for their eligibility into the IMPACT AAPI LinC learning community, a description of the program, the LinC coordinator's contact information, and instructions on how to enroll. If the learning community section did not reach optimal enrollment numbers within two to three weeks of the beginning of registration then the LinC coordinator and co-instructors made personal phone calls to each student to explain the purpose of the learning community and to encourage them to enroll.

The recruitment of students occurred in three waves: students from the AANAPISI-targeted ethnic groups (Filipino, Pacific Islander, and Southeast Asian) were contacted first, followed by students from other AAPI ethnic groups, and lastly non-AAPI students. Interviews with the team indicated that the most important factor in student participation was when the course was offered, so participation was more a matter of convenience than anything else. While we cannot determine the extent to which convenience overtook successful recruitment in the eventual enrollment of the intervention course section, it appears that the selection bias into the program may play less of a role in our results than that implied by the recruitment strategy.

City College of San Francisco

Students were recruited to apply to the AANAPISI STEM program via high school outreach and in-reach efforts on campus. STEM program staff and student ambassadors connected with counselors and students at local high schools and CCSF to educate them about the program and distribute marketing materials. On campus, STEM major department chairs were informed about the program to help in the recruitment efforts. Students also learned about the STEM program through class presentations or word-of-mouth. The recruitment was viewed as very successful by the STEM program staff, who ultimately accepted all applicants.

Though a comparison group was constructed from baseline characteristics matched with the participants in the program, and the demographic profile of the participants were very similar to that of the comparison group, there may be selection bias associated with the motivation of students who chose to apply and participate in the program.

South Seattle Community College

Students were recruited into the AANAPISI-funded learning communities (LCs) at SSCC in one of three ways: by being advised into the program by a counselor; by registering themselves online when making course selections; or by responding to a flyer advertising the program. The vast majority of students who participated in the LCs were advised into the program by counseling staff as they were identified with needing a high degree of specialized support. Recommendations to participate in the LC were based on counselors' knowledge and perceptions regarding students' level of need for additional support based on students' placement scores, family obligations, and other life circumstances. Some students who attempted to register themselves online for the developmental English or Math course section linked to the college success course were confused by why the registration system was enrolling them for the additional course. These students typically contacted counselors to understand the cause; the counselors explained the rationale for the linked courses and encouraged students to participate if they believed the students would benefit from it.

Both the structure of the LC and the recruitment process raises potential for selection bias. Because the LC is set up to require participation in two linked courses in the same semester, it may attract students who have greater flexibility due to their enrollment status, work schedule, and related obligations compared to those who enrolled in the same level of developmental education but without the linked course and LC supports. Most LC participants were encouraged by counselors to join based on perceptions of their needs, but counselors could have only made their recommendations for those students who initiated contact in some way as counseling appointments are not required (that is, students initiated contact either by scheduling a planned appointment, walking in for drop-in counseling, following up on the flyer, or calling with a question

about online registration for the linked course). As a result, most of the LC participants may have been perceived by counselors as in need of greater support compared to those who were counseled into the same level of developmental education without the associated supports. At the same time, however, some students who received recommendations to participate in the LC may have been unable to do so due to the commitment to take the linked courses (e.g., they had inflexible schedules or family obligations that did not enable them to participate in the linked courses). Additionally, some students enrolled in developmental education may have been unaware of the LC opportunity as they did not have contact with a counselor, did not see the linked course option online, or did not see the flyer.

ENDNOTES

- 1 N. Harmon, *The Role of Minority serving Institutions in National College Completion Goals* (Washington, DC: Institute for Higher Education Policy, 2012); M. Gasman & C. Conrad, *Minority Serving Institutions: Educating All Students* (Philadelphia, PA: Center for Minority Serving Institutions, 2013); J. Lee & S. Keys, *APLU: Committed to Latino Student Success* (Washington, DC: Association of Public and Land-Grant Universities, 2013); D. Santiago, *What Works for Latino Students in Higher Education* (Washington, DC: Excelencia in Education, 2012).
- 2 *Ibid.*
- 3 Gasman & Conrad, *Educating All Students* (2013); T. Parker, *The Role of Minority serving Institutions in Redefining and Improving Developmental Education* (Atlanta: GA, Southern Education Foundation, 2012).
- 4 Gasman & Conrad, *Educating All Students* (2013); The National Forum on Higher Education for Public Good, *Examining the Financial Resilience of Hispanic-Serving Institutions (HSIs) as they Prepare to Serve the Next Generation of Latino Students* (Ann Arbor, MI: Author, 2013); B. Vuong & C. Hairston, *Using Data to Improve Minority serving Institution Success* (Washington, DC: Institute for Higher Education Policy, 2012).
- 5 D. Santiago, "Public Policy and Hispanic-Serving Institutions: From Intervention to Accountability," *Journal of Latinos and Education*, 11, no 3 (2012): 164.
- 6 A. Carnevale, N. Smith, J. Strohl, *Help Wanted: Projections of Jobs and Education Requirements through 2018* (Washington, DC: Center on Education and the Workforce, 2010).
- 7 Congressional Research Service, *Memorandum Regarding the Number of Institutions Potentially Eligible to Receive Grants Under the Assistance to Asian American and Native American and Pacific Islander-Serving Institutions Program* (Washington, DC: Author, 2009).
- 8 S. Flores & T. Park, "Race, Ethnicity, and College Success: Examining the Continuing Significance of Minority Serving Institutions" *Educational Researcher*, 43, no 3 (2013).
- 9 Gasman & Conrad, *Educating All Students* (2013); Harmon, *The Role of MSIs in National College Completion Goals* (2012).
- 10 Carnevale, et al., *Help Wanted*, (2010).
- 11 P. Mery & E. Schiorring, *Transfer Practices at De Anza College* (Santa Barbara, CA: Center for Student Success of the Research & Planning Group for California Community Colleges, 2008): 7.
- 12 De Anza College, *Mission Statement* (Cupertino, CA: Author, 2013).
- 13 IMPACT AAPI, *Presentation at De Anza College: Increasing Success among Asian American and Pacific Islander (AAPI) Students: IMPACT AAPI/AANAPISI Program* (Cupertino, CA: Author, 2012).
- 14 T. Bailey, "Challenge and Opportunity: Rethinking the Role and Function of Developmental Education in Community College," *New Directions for Community Colleges*, 145 (2009); T. Bailey & S. Cho, "Developmental Education in Community Colleges," *Summit on Community Colleges* (2010).
- 15 Bailey, "Challenge and Opportunity" (2009); P. Jenkins & S. Cho, *Get with the Program: Accelerating Community College Students' Entry into and Completion of Programs of Study* (New York: Community College Research Center, 2012).
- 16 S. Scrivener, D. Bloom, A. LeBlanc, C. Paxson, C. Rouse, & C. Sommo, *A Good Start: Two-Year Effects of a Freshmen Learning Community Program at Kingsborough Community College* New York: MDRC, 2008).
- 17 Bailey, "Challenge and Opportunity" (2009).
- 18 *Ibid.*
- 19 M. Karp, *Toward a New Understanding of Non-Academic Student Support: Four Mechanisms Encouraging Positive Student Outcomes in the Community College* (New York: Community College Research Center, 2011); Scrivener, et al., *A Good Start* (2008).
- 20 G. Kuh, *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter* (Washington, DC: Association of American Colleges and Universities, 2008); M. Visher, M. Weiss, E. Weissman, T. Rudd & H. Wathington, *The Effects of Learning Communities for Students in Developmental Education* (Washington, DC: The National Center for Postsecondary Research and MDRC, 2012).
- 21 K. Bielaczyc & A. Collins, "Learning Communities in Classrooms: A Reconceptualization of Educational Practice," *Instructional-Design Theories and Models* (Mahwah, NJ: Lawrence Erlbaum Associates, Inc., 1999).
- 22 I. Chen, N. Chen, & Kinshuk, "Examining the Factors Influencing Participants' Knowledge Sharing Behavior in Virtual Learning Communities," *Educational Technology & Society*, 12, no 1 (2009).
- 23 A. Brower & K. Inkelas, "Living Learning Programs: One High-Impact Educational Practice We Now Know a Lot About," *Liberal Education*, 96, no 2 (2010): 1.

- 24 P. Freire, *Pedagogy of the Oppressed* (New York, NY: Continuum, 1970, 1993); G. Ladson-Billings, "But That's Just Good Teaching! The Case for Culturally Relevant Pedagogy," *Theory into Practice*, 34, no 3 (1995); K. Morrison, H. Robbins, & D. Rose, "Operationalizing Culturally Relevant Pedagogy: A Synthesis of Classroom-Based Research," *Equity & Excellence in Education*, 41, no 4 (2008).
- 25 G. Ladson-Billings, "But That's Just Good Teaching! The Case for Culturally Relevant Pedagogy," *Theory into Practice*, 34, no 3 (1995): 161–162.
- 26 M. Magolda & King, P., *Learning Partnerships: Theory and Models of Practice to Educate for Self-Authorship* (Sterling, VA: Stylus Publishing, 2004).
- 27 A. White, *From Dream to Reality: City College of San Francisco, A Short History* (San Francisco: Author, 2005): 5.
- 28 Complete College America, *Three Policies to Reduce Time to Degree* (Washington, DC: Author, 2011); N. Johnson, *What Does a College Degree Cost? Comparing Approaches to Measuring "Cost Per Degree"* (Washington, DC: Delta Cost Project, 2009).
- 29 South Seattle Community College, *Report to our community: South Seattle Community College & SSCC Foundation* (Seattle, WA: Author, 2012): 16.
- 30 U.S. Census Bureau, *State and County QuickFacts: Seattle, Washington* (Washington, DC: US Census, 2010).
- 31 A. Bryk & U. Treisman, "Make Math a Gateway, Not a Gatekeeper," *Chronicle of Higher Education* (2010); Z. Rutschow & E. Schneider, *Unlocking the Gate: What We Know about Improving Developmental Education* (New York: MDRC, 2012); Scrivener, et al., *A Good Start* (2008).
- 32 *Ibid.*
- 33 J. Brand & Y. Xie, "Who Benefits from College? Evidence for Negative Selection in Heterogeneous Economic Returns to Higher Education," *American Sociological Review*, 75, no 2 (2010); P. Rosenbaum & D. Rubin, "The Central Role of the Propensity Score in Observational Studies for Causal Effects," *Biometrika*, 70, no 1 (1983).
- 34 Gasman & Conrad, *Educating All Students* (2013); Harmon, *The Role of MSIs in National College Completion Goals* (2012).
- 35 Carnevale, et al., *Help Wanted*, (2010).



CARE

National Commission on Asian American & Pacific Islander Research in Education

care.gseis.ucla.edu

APIASF[®] Today's Minds,
Tomorrow's Future[®]
Asian & Pacific Islander American Scholarship Fund

www.APIASF.org/CAREreport

