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Student Success in Higher Education is Everybody's Business

September 2011 | by Stacy Wilson, Ryan Fuller, Olena Mykhaylichenko

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Foreword

The California Postsecondary Education Commission is pleased to present *Student Success in Higher Education is Everybody's Business*.

In this report we use key outcome measures to summarize student performance within each higher education system; describe the degree of progress derived from system-level initiatives; and offer recommendations to address impediments and reduce demographic disparities.

This follows from our 2010 report *Ready or Not, Here They Come*, in which we estimate that California public colleges and universities should prepare for 400,000 additional undergraduates by 2019. In *Ready for Learning*, another report published in 2010, we project that undergraduate demand at independent institutions will increase by 16%, or 21,000 additional students.

In turning attention to student success, we find that there is much to celebrate. Bachelor's degree production is increasing, and students are earning degrees in less time. We estimate that the average instructional cost per bachelor's degree at CSU would be about $13,600 higher without improvements in degree attainment.

Graduation rates for Black and Latino students are increasing significantly at the University of California and California State University. Community college transfer rates are higher than often cited when transfers to independent institutions and to out-of-state institutions are included in the calculation. Furthermore, transfer students do well in completion. About 83% of students who transfer to UC and 73% of students who transfer to CSU earn bachelor's degrees.

But there is also much to be accomplished.

Males complete bachelor's degrees at lower rates than females. Between 2004 and 2009 English and math proficiency for entering CSU freshmen has not improved. We estimate that only 23% of degree-seeking community college students earn associate degrees or certificates within nine years. Although UC is to be commended for its efforts to reduce the effect of socioeconomic status on degree completion, students from family backgrounds with annual incomes over $120,000 persist to graduation at higher rates than students from families with annual incomes below $40,000.

Policymakers are aware that higher education institutions are being asked to achieve greater success at a time when state general funding to the public systems is declining drastically, institutional costs are increasing, and revenues to state and local governments are eroding because of a struggling economy. While the economic impediments to success are daunting, the Commission believes that progress happens when everyone understands why student success is important to them, and what they can do to contribute to it.

The *Governor* understands that a vibrant economy is critical to a healthy state. The Governor contributes to student success by making higher education, to the extent possible given competing state needs, a priority for budget allocations. These allocations provide capital and operational resources, and financial aid to ensure that systems can carry out their missions and deliver the outcomes that are needed.

The *California Legislature* recognizes how a strong public higher education system contributes to the state's future. The Legislature contributes to student success with legislation and public policies and budgetary support that help identify statewide needs, and provides guidance on the outcomes the higher education systems are expected to achieve.

Higher education systems are providers of educational services and foster academic and career success, economic and social innovation, and growth in intellectual capital. The systems contribute to student success by managing operations diligently to meet with the public trust, delivering high-quality teaching and instruction, developing quality academic and vocational programs, maintaining vital student support programs, and responding to emerging state knowledge and workforce needs.

California's K-12 system is the pipeline to and the beneficiary of postsecondary student success and relies on a vigorous higher education system for its own success. It contributes to student success by preparing students for postsecondary education and providing counseling services to support student preparation for postsecondary education. It also partners with higher education institutions to expand participation of underrepresented student groups.

Business and industry establishments rely on a quality, accessible higher education system to generate innovation to fuel economic growth and to provide a skilled, knowledgeable workforce. These establishments contribute to student success by partnering with higher education to support the range of content knowledge, skills, and cognitive abilities graduates need to be successful in the workplace.

Students seek from higher education the preparation they need to be productive workers, able to support themselves and their families, to be upwardly mobile, and to pursue active citizenship and lifelong learning. Students contribute to their own success by being committed and engaged learners in pursuit of their educational aspirations and goals.

Parents and the general public understand that a well-educated citizenry that is able to be economically competitive and capable of solving major political and social problems makes for a better society. Parents contribute to student success by understanding the needs of higher education institutions and seeking to assure that public resources are used efficiently to maximize the return on investment.

Everybody has a stake in student success in postsecondary education.

This report is a starting point for determining how we can improve student success throughout the public and private higher education systems in California.

Defining Student Success

Studies of student success in higher education have typically involved a single outcome of interest within a single system. Some studies have examined basic skills achievement within the community college system, and some have focused solely on degree and certificate completion. The Commission believes that California can benefit from a more comprehensive study that considers a range of important success measures within each higher education system.

Defined broadly by the Commission: Student success in higher education is the ability of students to accomplish their educational goals in a timely manner and to attain key performance milestones.

CPEC's Student Success Advisory Committee has been very helpful in making the case that one's understanding of student success is enhanced when attention is also placed on nontraditional measures that capture student's initial and intermediate goals. An initial student goal might be as basic as "to successfully complete a word processing course." An intermediate goal may be more involved, such as "to complete nursing prerequisites with at least B grades in order to gain admission to selective baccalaureate nursing programs."

CPEC encourages institutions to develop valid ways to incorporate non-traditional measures to complement measures pertaining to retention, persistence, and degree completion. This effort is particularly warranted, given an increasing climate of student swirl in California — the phenomenon described by experts such as Cliff Adelman in which students enroll simultaneously at multiple institutions, attend classes intermittently rather than go straight through college, and hold down competing responsibilities such as part-time jobs (Culver, 2008).

Traditional measures of student success

Terminal success outcomes
- Degree/certificate completion

Performance milestones
- Course completion rates
- Student grades
- Persistence and retention
- Community college transfer
- CSU math proficiency
- CSU English proficiency
- Basic skills attainment

Demographic attributes
- Age group
- Gender
- Ethnicity
- Family income

Because of time constraints and resource limitations, this study focuses on traditional measures of success. The state places highest priority on educational equity, and this study, where possible, disaggregates results and findings by demographic attributes.

Recommendations

This section contains policy and administrative recommendations for consideration by the Governor, Legislature, and California public and independent institutions. Some of the recommendations call for enhancing what institutions are already doing, while others reflect new approaches for addressing success. The Governor and Legislature will have to take the lead in implementing these recommendations, because CPEC will no longer be in existence after it was defunded in July 2011.

Administrative recommendations should be regarded as a necessary preliminary step that will lead to the development of well-defined policy recommendations for consideration by public lawmakers and officials. Public policy solutions have an added value and benefit in that they usually carry the expressed intentions and support of elected officials. These expressed intentions will help institutions direct additional attention to success outcomes of interest to the state.

Policy Recommendations

State Higher Education Goals

CPEC is among numerous entities urging California to develop specific higher education performance goals. Without such goals, it is difficult for the Governor and the Legislature to enact annual budgets that align with higher education performance priorities and state needs for educated citizens and a skilled workforce. Jane Wellman, Executive Director of the Delta Project on Postsecondary Costs, Productivity, and Accountability, recently addressed the Commission and reaffirmed the importance of higher education goal-setting. `

As an important initial step, it is recommended that the Governor and the Legislature form a working group to develop an inclusive process leading to clearly defined state-level goals for higher education. Emphasis should be placed on goals that specifically address student success: access, degree and certificate production, adult and basic skills education, institutional capacity, transfer, educational quality, and other outcomes. Where applicable, goals should address socioeconomic disparities in outcomes.

In 2009, President Obama set a national goal to have the world's best-educated population of 25- to 34-year-olds by 2020. In California, about 38% or 2 million of 25- to 34-year-olds had an associate or bachelor's degree in 2009. To support the national goal, California would need to generate an additional 1.9 million degrees by 2020, about 209,000 per year.

CPEC's analysis indicates that it is improbable that California would be able to reach this goal by 2020. Significant progress could be achieved by adopting a state-level higher education plan that includes provisions for increasing certificate and degree completion.

Analysis of how Increased Student Success can Reduce the Cost of Degrees

If more students complete their degrees, the state's cost per degree will be reduced, because more degrees are completed for a given number of units taken by students and funded by the state. This report includes a preliminary estimate of the way that increased persistence reduces the average instructional cost per degree at CSU. State resources are used more efficiently when investment costs result in greater degree production. The Commission recommends the Governor and the Legislature encourage the systems to examine the costs of student success programs, the increase in graduation rates resulting from these programs, and the reduction in overall units taken per degree awarded to assess how the cost of student success programs is offset by the savings from increased graduation rates and develop strategies to manage return on investment in student success programs.

State Database of Student Success Indicators

CPEC is engaged in discussions with the Governor's Office, the Department of Finance, and the higher education systems to determine the most appropriate mechanism for housing and maintaining the CPEC longitudinal database when CPEC closes in November 2011. At this time, it is not clear if a publicly accessible website with postsecondary aggregate data would be available after CPEC closes.

Because the Commission believes it crucial that public officials and the general public be able to obtain student success results from a single website, it is recommended that a new website be devot-

ed to higher education indicators. Links to each system's student success data should be established for users interested in a broader range of success measures or who want greater detail.

Qualitative Research

With respect to student success, qualitative approaches would seek to investigate, understand, describe, and interpret outcomes using ethnography, phenomenology, case study, critical narrative and other frameworks. Data sources include direct classroom observation, in-depth personal interviews, focus groups, and surveys. The Commission recommends that educational researchers place more emphasis on the use of qualitative methods as an effective and valid strategy for assessing student success, and that public officials encourage such practices.

Administrative Recommendations

CSU Math Remediation

The proportion of CSU first-time freshmen needing English and math remediation has remained unchanged between 2004 and 2009. Female math proficiency remains 17 percentage points below the male rate. The rate for Black students was 30 points below the mean. As a preliminary step, a state-level discussion should be initiated with CSU and high school math instructors regarding math proficiency of female, Black, and Latino students. The discussion should result in a better understanding of math proficiency among these students so that collaborative improvement strategies can be implemented. See Display 8 on page 11.

First-Time Freshman Demand

CPEC's 2010 enrollment demand report shows that demand for first-time freshmen entering from California high schools to be 1.5 times the freshman demand anticipated for UC and CSU combined. Preserving a reasonable level of access for high school students entering community colleges will be difficult at best, given current higher education funding levels, and even worse if additional funding cuts are imposed in 2012 and beyond.

The public higher education systems should work with the Governor and the Legislature on strategies to address freshman access in the near future, particularly at the community colleges. The Commission's enrollment demand projections should be used to inform this effort.

Gender Disparities

CSU has been improving first-time freshman graduation rates. However, rates are significantly higher for females within each ethnic category. It is recommended that CSU and UC develop possible plans and goals for reducing gender disparities in freshman and community college transfer graduation rates. See Displays 6 and 7.

Community College Online Data

The Community College Chancellor's Office supports a website that allows users to create and download customized reports on student success measures. The Commission recommends the chancellor's office consider enhancing its student data tool so that student success measures that are of high interest to policymakers and researchers could be arrayed by several demographic factors at a time while protecting data quality and confidentiality.

The Commission also recommends an enhancement that would allow users to derive the proportion of community college students that complete courses with a B grade or better by demographic

factors. This would allow analysts to assess the quality of preparation for more advanced courses. Currently, it is only possible to obtain information on course completions with a C grade or better.

Community College Student Goal Indicator

As part of the community college admission process, applicants are asked to state their education goal. Few studies have related the student goal indicator to student success outcomes because the indicator is considered to be unreliable as a true measure of student intent.

The Commission recommends that community college researchers develop a qualitative study to determine how the student goal indicator could be made more valid and reliable. The Commission endorses the recommendation made by a member of the Student Success Advisory Committee that the community college system require all campuses to collect student goal information for all new students using a common list. Presently the goal options that student can select from are not uniform across individual community college campuses.

Best Practices

The Commission endorses the recommendation of Colleen Moore and Nancy Shulock in *Divided We Fail* (Institute for Higher Education Leadership & Policy, 2010) that a formal process be initiated by which colleges and universities share information regarding institutional practice that have led to improvements in student success outcomes.

The Research & Planning Group for the California Community Colleges provides case studies at its Center for Student Success Promising Practices Archive, at css.rpgroup.org. Examples of best practices contain mostly general statements about program impact and success. There is little information on evaluations that demonstrate valid relationships between programs and changes in student outcomes. The archive provides links to information from the host campus and faculty. See page 32 for best practice examples in the Community College system.

As part of CSU's Graduation Initiative, the system maintains a website, graduate.csuprojects.org, with examples of best practices in advising, curriculum pathways, degree requirements, faculty development, research and evaluation, and support services. The site provides a short description of each practice and the type of evidence needed to demonstrate effectiveness. In advising, the site has examples of Peer Mentoring at CSU East Bay; Culture of Graduation at Cal Poly San Luis Obispo; and an Early Warning System to monitor academic standing at CSU Bakersfield.

The Commission recommends that the higher education segments develop criteria and standards for including specific improvement programs as best practices. Links to best practices should be developed and updated so that educators can learn more about program configuration, strategic features, and effectiveness.

FINDINGS AND RESULTS

President Obama's Higher Education Graduation Goal

In an address to Congress in February 2009, President Obama set a goal for the United States to have the best-educated population in the world by 2020 for persons aged 25 to 34 who have earned an associate or bachelor's degree. The U.S. Department of Education estimates that the nation's colleges and universities will need to produce 50% more graduates by 2020, or about 8 million more associate and bachelor's degrees.

Display 1 Degree attainment needed to reach 2020 graduation goal

	2009	2020	Additional graduates needed	
			total	per year
Graduates	2,041,253	3,880,000	1,838,747	208,305
Population age 25–34	5,262,734	6,466,666		
Percent of population	38%	60%		

2009 data from Census American Community Survey.

Census projections used to estimate 25- to 34-year-old population in 2020

Display 2 Californians aged 25–34 with college degrees

Year	Associate degrees	Bachelor's degrees	Total
2005	373,039	1,448,439	1,821,478
2006	370,108	1,466,275	1,836,383
2007	376,877	1,476,355	1,853,232
2008	381,362	1,491,778	1,873,140
2009	387,955	1,653,298	2,041,253
Change rate	4,109	43,522	47,631

Source: U.S. Census American Community Survey Public Use Microdata Sample.

The 25–34 age group represents about 22% of Californians with a degree.

Bachelor's degrees includes population with bachelor's degrees or higher.

Change rates based on CPEC regression analysis.

The U.S. Department of Education estimated the improvement in degree production each state would need to achieve in order to contribute to the national goal. In California, about or 38%, or 2 million, of 25- to 34-year-olds had a degree in 2009. California would need to generate an additional 1.9 million degrees by 2020, or about 209,000 per year. In order to meet the goal and increase the proportion of 25- to 34-year-old college graduates from 38% to 60%, the total would have to increase by 94%.

CPEC staff used the period of 2005 to 2009 to derive the current annual rate of increase in degree production in California for ages 25 to 34. Degrees are increasing by about 48,000 per year, which is significantly below the target rate. It is improbable that California will reach the degree attainment goal by 2020. When all age groups are considered in California, the number of degree-holders increases to 9.3 million.

Display 3 provides a summary of basic actions California public and independent degree-granting institutions can do to advance toward the President's goal. Significant progress could be achieved by adopting a state-level higher education plan that includes these and other actions.

Display 3 Actions needed to accelerate degree production

System	Current condition	Actions needed in state higher education plan
California Community Colleges	About 388,000 people aged 25 to 34 had associate degrees or certificates in 2009	Continue to invest in efforts intended to raise degree and certificate rates. Include a provision to raise degree and certificate production by a minimum of 2 percentage points per year for persons aged 25 to 34.
University of California	83% graduation rate – highest of any system	Continue efforts to improve graduation rates for economically disadvantaged persons, underrepresented ethnic groups, and male students.
California State University	Undergraduate degree rates have improved significantly	Continue to support graduation initiative. Place greater emphasis on increasing graduation rates for Latino and Black males.
Independent degree-granting institutions	—	Encourage member institutions to share undergraduate degree data by gender and ethnicity to assess where program improvements are warranted.

California State University

Access to Success Initiative

The California State University is participating in a national effort called Access to Success. CSU seeks to raise the freshman six-year graduation rate by 8 percentage points by 2015–16 and reduce the gap in degree attainment for underrepresented student groups (Blacks, Latinos, and American Indians). Currently, about half of entering freshmen graduate within 6 years. All CSU campuses have established graduation targets equal to or exceeding rates comparable to the top quartile of national averages for similar institutions.

Display 4 Actual and projected CSU freshmen graduation rates

	1995 cohort	2000 cohort		
	12-year estimate	Spring 2009 pct. graduated	12-year estimate	2015 projected graduation rate
Overall	58.0%	60.4 %	62.0 %	66.0%
Asian	61.0	62.8	64.8	70.3
Black	39.0	44.9	46.9	53.5
Latino	52.0	53.9	55.9	59.2
American Indian	52.4	48.1	51.1	57.2
White, other	65.3	64.9	66.9	70.8

Asian includes Pacific Islander and Filipino students.
Source: CPEC AB 1570 unitary data

Finding. Based on recent improvements in the six-year graduation rate, CPEC estimates the freshman 12-year graduation rate to increase from 58% in 1995 to 62% in 2012 and to 66% by 2015.

Graduation rates by ethnicity are shown in Display 4, above. Black students are projected to have the largest increase, 39% in 1995, to a projected 53.5% in 2015.

Finding. Although higher state investments are needed to fund enrollment growth due to increases in student persistence, significant cost savings results when degree production increases. The estimated cost per degree resulting from increased degree attainment is $58,000. If improvements were not realized, the cost per degree would be $71,600, about $13,600 higher. Resource efficiency is a byproduct of three factors: the rate at which students of a particular ethnic group complete their degrees, the number of degrees awarded, and declines in student attrition.

Display 5 CSU First-time freshmen – average instructional cost per degree

	Average instructional cost per degree		State's savings per degree
	With improvements in degree completion and persistence	No improvement in degree completion and persistence	
Overall	$58,048	$71,676	$13,628
Asian	57,120	72,096	14,976
Black	66,551	95,111	28,561
Latino	64,696	79,756	14,788
American Indian	67,421	72,199	4,778
White, other	52,518	62,573	10,056

CPEC staff analysis based in part on the student flow methodology developed by Philip Garcia, CSU Director of Analytical Studies,

Marginal instructional cost per headcount student = 2010 MIC per FTES ($10,398) x 0.87

Finding. The average cost per degree over the first six years of an entering freshman cohort is a bit higher than it is over the 12-year lifespan of a cohort. This results because the first six years of a cohort includes a substantial number of students who will not eventually earn a degree, which is a drain on state coffers. CSU is improving six-year graduation rates and reducing the gap in degree attainment among underrepresented student groups.

Finding. When freshman and community college transfer graduation rates are disaggregated by gender, females persist to degree completion at appreciably higher rates than males within each ethnic group.

Display 6 CSU Graduation rates, 2000 freshman cohort

	—— % graduated as of 2009 ——		
	Male	Female	All students
Asian	58.2	72.4	62.8
Black	38.9	48.8	44.9
Latino	46.8	58.4	53.9
American Indian	44.4	50.3	48.1
White, other	59.8	68.7	64.9
Overall	55.6%	63.9%	60.4%

Asian includes Pacific Islander and Filipino

Source: CPEC AB 1570 unitary data

For the 2000 freshman cohort, the most glaring gender difference in graduation is the Asian category, with 72.4% of females persisting to graduation within nine years, compared with 58.2% of males. The ethnic group with the least gender differ-

ence in completion is the American Indian category, with 50.3% of females graduating within nine years, compared with 44.4% of males.

Finding. The most demonstrative gender difference in seven-year graduation rates for the 2002 transfer cohort is Black transfer students, with females posting a graduation rate of 68.2%, compared with 55% for males. White students have the least gender difference in the seven-year graduation rate, with 79.5% of females and 74.2% of males.

Early Assessment Program and Freshman Proficiency

In 2004, CSU established the Early Assessment Program as a partnership with the California Department of Education and the State Board of Education. In September 2008, SB 946 authorized the community colleges to participate voluntarily, in that no funding was attached to the bill.

The program assesses college-level English and math proficiency of high school juniors.

Test results are shared with students so that they have an opportunity to improve any identified deficiencies during their senior year. Incoming freshmen must demonstrate proficiency in math and English before they can enroll in college-level math or English courses. Proficiency is based on performance on the Entry Level Math exam and the CSU English Placement Test.

Finding. Although females have higher graduation rates, a higher proportion tend to begin matriculation needing math remediation. Of the CSU first-time freshmen who entered in 2009, 73% of males and 55% of females tested proficient in math. Overall, math proficiency results were flat between 2004 and 2009, and English proficiency declined.

Display 7 CSU Seven-year transfer graduation rates

	Students entering in ...		
	2000	2001	2002
Total — N	31,595	33,843	34,475
Rate	72.3%	72.4%	73.0%
Male	68.4	68.2	68.7
Female	76.1	75.2	75.5
Male			
Asian	66.7	67.9	67.5
Black	49.2	54.1	55.0
Latino	67.0	65.2	63.9
American Indian	72.5	56.7	58.2
White	70.6	70.7	74.2
Female			
Asian	73.8	71.9	74.6
Black	65.4	66.1	68.2
Latino	73.1	75.1	75.1
American Indian	68.6	73.2	62.9
White	77.8	78.6	79.5

CSU cohorts include community college transfer students in fall semesters.

Asian includes Pacific Islander and Filipino.
Source: CPEC AB1570 unitary data

Display 8 CSU proficiency results for first-time freshmen, 2004–09

	2004	2005	2006	2007	2008	2009
Mathematics proficiency						
Female	55.4%	55.8%	54.2%	54.9%	55.5%	54.7%
Male	74.2	75.0	74.1	73.5	72.9	72.9
All students	63.2	63.8	62.5	62.8	62.8	62.4
English proficiency						
Female	51.5	53.2	53.5	52.4	51.8	49.1
Male	55.9	57.1	56.5	55.7	54.6	53.4
All students	53.4	54.8	54.7	53.8	53.0	50.9

Display 9 Proportion of public high school graduates expected to enroll as CSU first-time freshmen

	Actual, fall 2008	Projected, fall 2019
Asian	16.5%	17.6%
Black	13.2	15.9
Latino	10.6	12.3
American Indian	11.1	14.2
White	11.7	12.3

Source: CPEC report 10-05, *Ready or Not, Here They Come*

Finding. Between 2000 and 2008, the number of regularly admissible freshmen from California high schools increased 49 percent, from 32,474 to 48,265. Public high school graduates account for about 84% of total CSU first-time freshmen enrollments, with the remaining 16% entering from California private, out-of-state, and foreign schools.

Finding. Based on recent enrollment trends, school improvement efforts, and a state need for increased bachelor's production to meet workforce needs, CPEC expects total CSU first-time freshman enrollment to increase from 54,535 in 2009 to 57,437 by 2019. Projected CSU public high school participation rate for 2019 is shown in Display 9 above. If the state, because of severe economic circumstances, is unable to fund this level of growth, significant losses in college opportunity would result, as CPEC estimated in *Ready or Not, Here They Come*.

California Community Colleges

This report highlights four major student success initiatives of the community college system: Basic Skills Accountability, Student Success Online Data Tool, the Center for Success Promising Practice Archive, and the Community College Task Force on Student Success.

In *Ready or Not, Here They Come*, undergraduate enrollment demand projections were derived for each public higher education system. First-time freshman and transfer demand were projected for UC and CSU. In this report, first-time freshman demand is estimated for the community college system.

Finding. Enrollment demand is expected to increase from 122,617 students in 2000 to nearly 150,000 in 2019, as shown in Display 10 on page 13. Although the increase is rather modest between 2009 and 2019 — a result of an anticipated 6% decline in the number of public high school graduates — it is still more than 1.5 times the freshman demand anticipated for UC and CSU combined.

Protecting and preserving access for students entering from high school poses a significant challenge for the state. Continuing budget cuts in higher education, including deep cuts in 2011–12, have limited access to higher education. Chancellor Scott estimates that the community college system might be forced to reduce enrollments by 400,000. New students, such as first-time freshmen, might be affected the most because all higher education systems give preference to continuing students.

Display 10 Community colleges first-time freshmen enrollment demand

	American Indian	Asian	Black	Latino	White, other	Total
Actual						
2000	1,175	18,442	8,834	41,715	52,451	122,617
2001	1,197	19,799	9,452	44,763	55,288	130,499
2002	1,244	21,346	11,320	50,578	58,855	143,343
2003	1,190	21,070	10,738	50,159	55,383	138,540
2004	1,352	22,613	12,403	54,920	56,450	147,738
2005	1,220	20,749	12,067	49,383	49,104	132,523
2006	1,321	22,580	12,617	52,797	50,876	140,191
2007	1,361	22,545	12,948	56,411	51,291	144,556
2008	1,410	21,697	13,070	60,815	50,646	147,638
2009	897	20,652	10,267	61,945	45,708	139,469
Projected						
2010	948	21,376	10,335	63,018	44,545	140,222
2011	901	21,768	10,451	64,544	43,027	140,691
2012	983	22,216	10,461	65,884	42,528	142,072
2013	1,073	23,016	10,344	66,997	42,290	143,720
2014	1,134	23,589	10,100	67,509	41,451	143,783
2015	1,149	24,087	10,025	67,672	40,310	143,242
2016	1,163	24,188	10,192	68,994	40,373	144,911
2017	1,167	24,822	10,101	69,530	40,250	145,870
2018	1,184	27,163	10,089	71,199	40,037	149,672
2019	1,215	26,989	10,078	71,623	39,616	149,520
pct change from 2009	35.4%	30.7%	-1.8%	15.6%	-13.3%	7.2%

Asian includes Filipinos and Pacific Islanders

Basic Skills Accountability Initiative

The Basic Skills Accountability Initiative helps underprepared and ESL students acquire a basic ability to read, write, and speak English, and acquire basic computational skills below algebra needed to succeed in college and the workplace.

The program is an outgrowth of the system's 2004 strategic planning process. In 2007, Assembly Bill 194 (chapter 487) provided $33.1 million in supplemental funding to support basic skills education, and required accountability for outcomes resulting from this funding. The California Budget

Project reported that in 2009–10, the community colleges received $596.7 million in local and state funding, and supplemental funding, for basic skills education.

Finding. Early results show limited progress in basic skills course completion. The completion rate has remained unchanged at 61.5% from 2008 to 2010. Somewhat promising is that the percentage of students completing a higher level basic skills course after completing a lower level one increased from 50% in 2008 to 53.8%. The CBP found that:

- Basic skills students require about one additional year to earn a vocational certificate or an associate degree and nearly 1.5 additional years to transfer, compared with non-basic skills students.
- 58.6% of basic skills students wait until after their first year to enroll in a basic skills course.
- Only 8.8% attend college full-time.

Display 11 Community college readiness for transfer-level math and English, 2009

Assessment level	Math (N=368,886)	Writing (N=334,648)
Transfer level	15.5%	26.5%
1 level below	18.4	35.7
2 levels below	27.2	22.1
3 levels below	20.6	12.7
4 levels below	16.2	2.2
5 levels below	1.7	0.8
6 levels below	0.4	–

Source: California Community Colleges Chancellor's Office.

Includes credit and noncredit assessments.

Course Completion

One important success measure captures the ability of students to complete community college coursework with at least C grades. Students who consistently earn lower grades are more likely to be discouraged from continuing their education and realizing their educational goals.

Finding. The proportion of community college students completing degree-credit courses with at least a C grade has remained virtually unchanged at 67% from 2005 to 2009. There are no discernable differences by gender, while rates vary by ethnicity, with Asian students having the highest rate (74.4%) and Black students having the lowest (55.3%).

Finding. For physical science courses, completion rates by Black students with a C grade or better continues to lag below the mean by 16 percentage points; by 7 percentage points for Latino students; and by 8 percentage points for Pacific Islander students.

Display 12 Students completing degree-credit courses with a C or higher

	2005	2006	2007	2008	2009
All Students	66.77	66.96	66.30	66.95	67.53
Female	68.05	67.91	67.18	67.74	68.45
Male	66.42	66.86	66.22	66.95	67.36
Black	55.43	55.58	54.72	55.1	55.34
American Indian	62.85	62.98	61.3	62.41	64.13
Asian	72.94	73.13	72.82	73.83	74.39
Filipino	67.75	68.26	68.02	69.03	69.76
Latino	62.57	62.77	62.5	63	63.8
Pacific Islander	61.5	61.89	60.74	62.22	63.11
White, non-Latino	71.31	71.37	70.4	71.25	72.17

Source: California Community College Chancellor's Office

Display 13 Completion rates in physical science courses

	2005	2006	2007	2008	2009
Astronomy	61.11%	61.09%	60.12%	62.35%	62.93%
Chemistry	65.49	65.12	66.42	66.66	66.94
Earth sciences	58.59	60.22	59.68	58.56	60.67
Geology	63.99	65.31	63.47	63.53	63.27
Ocean technology	68.52	72.15	67.14	57.89	70.13
Oceanography	62.49	63.63	59.50	60.73	61.37
Other physical sci	75.34	73.21	84.93	81.71	86.21
General physical sci	57.78	57.73	54.98	58.90	57.55
Physics	71.65	72.60	70.68	71.47	71.92
Total	64.99	65.50	64.86	65.31	65.14

Completion rates for fall semesters in credit-only courses.

Source: California Community College Chancellor's Office

Display 14 Completion rates in physical science courses, by gender and ethnicity

	2005	2006	2007	2008	2009
American Indian	55.27%	58.09%	58.43%	61.06%	59.17%
Asian	71.37	71.56	71.00	71.65	72.24
Black	49.52	51.21	49.61	49.85	49.28
Filipino	62.51	63.02	63.00	63.89	64.61
Latino	57.38	57.66	57.51	58.10	57.94
Pacific Islander	57.69	58.10	55.80	54.51	56.58
White	69.06	69.72	69.04	69.25	69.57
Male	64.87	65.05	64.44	65.00	64.87
Female	65.11	65.89	65.24	65.62	65.38
All students	64.99	65.50	64.86	65.31	65.14

Completion rates for fall semesters in credit-only courses.

Source: California Community College Chancellor's Office

Transfer to Public and Private Institutions

Community college transfer is a key component of student success because it provides students with an
alternative entry point to a university education.

Determining which community college students enroll with the intent to earn a degree or transfer is problematic. Upon admission to community college, students indicate their educational goal. But researchers have found this information unreliable for several reasons: first-year students are often not certain of their primary goal, goals often change over time, and some students are likely to select what they consider to be the most popular option.

Researchers use methods to calculate community college transfer rates. One method developed by community college researchers involves tracking the course enrollment behaviors of entering students. When those students exhibit behavioral intent to transfer, they are identified as a prospective transfer student, assigned to a cohort based on the year they entered, and then tracked over time periods. Behavioral intent to transfer means that within six years of initial enrollment, a first-time student has completed 12 credit units and attempted transfer-level math or English.

Finding. Just over half of the 2000–01 cohort of prospective transfer students transferred to a public or private four-year institution within 10 years, either in California or to other states. The student success online data tool allows users to select time intervals for deriving a transfer rate. The transfer rate is 41% over 6 years and 25% for a four-year period. These rates have remained flat over time.

Display 15 Ten-year transfer, 2000–01 cohort

	Transfers	Cohort	Transfer rate
Black, non-Latino	3,972	8,589	46%
American Indian, Alaskan Native	521	1,201	43%
Asian	14,323	21,136	68%
Filipino	2,994	5,734	52%
Hispanic	15,897	37,581	42%
Other, non-White	2,102	3,533	59%
Pacific Islander	554	1,119	50%
Unknown, no resp, declined	6,262	11,314	55%
White, non-Latino	33,776	62,420	54%
All students	80,401	152,627	53%

Source: California Community Colleges Chancellor's Office

Display 16 Community college transfer rates

Transfer time span	Cohort					
	1999	2000	2001	2002	2003	2004
3 years	15%	14%	13%	13%	15%	14%
4	26	25	25	25	26	27
5	34	34	33	34	35	36
6	41	41	40	40	41	41
7	45	46	45	45	44	42
8	49	49	48	48	46	–
9	51	51	50	49	–	–
10	53	53	51	–	–	–

Source: California Community Colleges Chancellor's Office

Degree Completion and Transfer to UC and CSU

Staff used the CPEC data system to derive degree and certificate completion and transfer rates for UC and CSU. The cohort studied consisted of first-time freshmen, aged 17 to 19, that enrolled in a community college for the first time in 2000 and who attempted 9 or more credit-units in 2000–01. Students concurrently enrolled in a high school or four-year institution were excluded.

Finding. Between 2000 and 2009, 22.7% of the freshman cohort earned either an associate degree or certificate, while 28.1 transferred to CSU or UC. 37.1% earned an associate degree or certificate or transferred. It is likely that an additional 25% of the cohort transferred to independent or for-profit bachelor's degree-granting institutions.

About 40% of women and 34% of men earned an associate degree or certificate or transferred. Asians had the highest percentage of students that either transferred or earned an associate degree or certificate (45.3%). Black students (24%) and Latinos (29.9%) had the lowest percentages of degree attainment.

Colleen Moore and Nancy Shulock in *Divided We Fail* (Institute for Higher Education Leadership & Policy, 2010) found that 70% of degree-seeking community college freshmen fail to complete a certificate or degree or transfer to four-year institutions within six years. The study defined a degree-seeking student as any first-time student who attempted more than six units during their first year.

Display 17 Degree attainment and transfer rates for community college first-time freshmen, 2000 cohort

	Cohort total	Earned degree or certificate, did not transfer	Transfer, no degree or certificate	Transfer, with degree or certificate	Earned degree or certificate	Percent transferred	All transfers and degree/ certificate recipients
Total	34,681	9.1%	14.4%	13.7%	22.7%	28.1%	37.1%
Male	16,209	7.4	15.5	11.1	18.6	26.6	34.0
Female	18,031	10.7	13.4	16.0	26.7	29.4	40.1
Asian	5,331	8.8	21.3	15.2	24.0	36.5	45.3
Black	1,931	8.7	6.3	9.0	17.7	15.3	24.0
Latino	10,659	9.1	8.3	12.6	21.6	20.9	29.9
American Indian	264	9.8	14.0	11.7	21.6	25.8	35.6
White	13,920	9.7	15.0	12.1	21.8	27.2	36.9

Source: CPEC AB 1570 unitary data.

Includes only students attempting 9 or more for-credit units in 2000–01. Transfer rates include only students transferring to a CSU or UC campus. Does not include students concurrently enrolled in a high school or four-year institution.

Asian includes Pacific Islander and Filipino.

Center for Student Success Promising Practices Archive

The Research & Planning Group for the California Community Colleges provides case studies at its Center for Student Success Promising Practices Archive, css.rpgroup.org.

Users can find best practices in student success, diversity, learning assessment, and health occupation training programs. In student success there are topic areas on course success, certificates and degrees, basic skills improvement, transfer success, workforce education, and student persistence. Case studies include example programs and practices with costs and evidence of impact and success cited for target groups.

This report includes CPEC's review of several best practices in the area of student success, and evaluative comments regarding the extent to which evidence of impact is supported by meaningful empirical data.

Finding. With few exceptions, best practice examples posted to the site contain only general statements about program impact and success. The archive provides links to more detailed information from the host campus and the faculty members responsible for developing the practice.

Community College Task Force on Student Success

Senate Bill 1143 (Liu) was chaptered into law in September 2010. The law required the California Community Colleges Board of Governors to establish a task force to examine best practices for promoting student success, and to adopt a plan for improving student success outcomes.

In January 2011, the Community Colleges Chancellor's Office launched its Task Force on Student Success. It is comprised of faculty members, researchers, college presidents, campus based practitioners, district chancellors, and other community college advocates. The task force has met five times to discuss student success metrics, college readiness, campus academic policies, basic skills, institutional change, and campus culture. In July 2011, the task force transitioned from research and analysis to developing recommendations for consideration by the Legislature.

University of California

The UC Office of the President's StatFinder website provides information for a variety of user groups. High school counselors and advisors can compare their school with other schools regarding UC freshman applications, admits, enrollments, graduation rates, and time-to-degree. Community college counselors can access comparable data for community college transfers. Researchers and the public can obtain comparable data by demographic factors, such as ethnicity, gender, parental education level, socioeconomic status, residency status, first-generation status, and first language spoken in the home. CPEC staff used this site, along with the CPEC longitudinal data system, to assess student success outcomes for UC.

Display 18 UC graduation rates, 2002 cohort

	% graduated as of 2008		
	Male	Female	Total
All students	79.7%	84.7%	82.5%
Asian	82	87.5	85
Black	68.1	78.4	75
Latino	70.4	76	73.7
American Indian	69.5	77.3	74.4
White, other	81.3	86	83.9

Source: CPEC AB 1570 unitary data.

Asian includes Pacific Islander and Filipino

Finding. Freshman and community college transfer graduation rates at UC are higher than at CSU, as shown in Display 18, above, and Display 19 on page 20. Community college transfer graduation rates are about 10 percentage points higher and freshman graduation rates are about 13 percentage points higher.

Finding. Similar to CSU, graduation rates are higher for females within each ethnic group. For the 2002 UC freshman cohort, the most glaring gender difference in graduation is the Black student category. 78.4% of Black females graduate in 7 years, compared with 68.1% of Black males. Asians and Whites have the least gender difference. UC graduation rates are shown in Display 18 above.

Finding. UC community college transfer graduation rates show gender differences, but not nearly to the extent showed for freshman graduation rates. One positive finding is that graduation rates for Black and Latino male transfers are just a few percentage points below the female rates.

Of potential concern is the American Indian category, with males of the 2002 cohort persisting to graduation 14 percentage points below the female rate. A similar result is shown for the 2000 cohort. Because American Indians only represent about six-tenths of a percentage point, the results for the ethnic group should be interpreted with a degree of caution.

Finding. Family median income for UC students is higher than it is for CSU and community college systems. CPEC staff used the UC StatFinder to determine how family income affects the freshman graduation rate. As shown in Display 20 below, the difference between the $120,000 and the $40,000 income categories is most pronounced for American Indians.

Finding. The income effect tends to persist, even after controlling for prior high school grade point average as a measure of scholastic preparedness and achievement. As shown in Display 21 on page 21, within each high school GPA category, six-year graduation rates are higher for students whose family income is $120,000 or more.

Display 22 below helps to understand how grade-getting performance changes as students persist to graduation. The data also help detect possible differences by gender and ethnicity.

Finding. By gender and ethnicity, mean grade point averages at graduation are higher than they were following students' first year of matriculation. This finding is noteworthy because it means that grade performance improves as students take more challenging courses and persist to graduation. It might also mean that grade behavior improves over time as students take more courses in their primary field of concentration.

Display 19 UC four-year transfer graduation rates

	2000	2001	2002
Total	9,199	9,891	10,236
Rate	81.8%	81.8%	82.5%
Male	80.0	79.8	80.3
Asian	81.0	79.1	82.0
Black	58.4	73.2	77.1
Latino	76.3	75.6	77.6
American Indian	77.3	79.3	68.6
White	81.7	82.0	80.3
Female	84.2	83.6	84.5
Asian	85.7	86.1	86.6
Black	66.0	68.4	79.3
Latino	79.7	78.7	80.3
American Indian	90.3	78.3	82.6
White	86.3	85.0	84.8

Source: CPEC AB 1570 unitary data.

Asian includes Pacific Islander and Filipino

Display 20 UC Six-year graduation rates by ethnicity and family income, 2001 first-time freshmen

	< $40,000	$40,000–79,000	$80,000–120,000	> $120,000	All income levels	N
Asian	80.40%	83.9%	86.8%	87.4%	84.0%	10,984
Black	68.80	73.1	73.6	78.6	70.6	849
Latino	71.80	71.8	79.2	77.8	73.5	3,850
American Indian	56.70	76.5	87.5	77.3	72.5	160
White, other	76.70	78.6	82.6	85.4	82.4	10,122

Source: UC StatFinder

Display 21 UC Six-year graduation rates by family income and GPA, 2001 cohort

	GPA				
Income	3.2–3.39	3.4–3.59	3.6–3.79	3.8–3.99	4.0
< $40,000	71.9%	78.1	80.3	85.5	87.0
> $120,000	80.3	86.0	89.6	91.7	94.1
Difference	8.4	7.9	9.3	6.2	7.1

Source: Adapted using UC's StatFinder

Display 22 UC cumulative GPA, first-time freshmen, 2001 cohort

	after 1 year	after 2 years	at graduation
Male			
Asian	2.8	2.9	3.05
Black	2.53	2.62	2.91
Latino	2.59	2.73	2.96
American Indian	2.62	2.88	3.12
White	2.97	3.04	3.2
Total Male	2.84	2.94	3.11
Female			
Asian	2.93	3.01	3.14
Black	2.75	2.82	2.98
Latino	2.72	2.85	3.04
American Indian	2.91	2.99	3.14
White	3.15	3.21	3.33
Total Female	2.98	3.06	3.2
Total	2.92	3.0	3.16

Source: UC StatFinder. California residents only

ANALYSIS AND DISCUSSION

California State University

California State University is the largest four-year public postsecondary system in the nation. In fall 2010 its 22 campuses served 443,872 undergraduate, graduate, and post-baccalaureate students in 200 academic disciplines and fields. The Commission's enrollment demand study indicates that beginning in fall 2013 the system will be asked for the first time to serve more than 400,000 undergraduates during each fall term. By fall 2019, undergraduate demand will exceed 419,000 students annually. The state's economic circumstances will likely result in a significant loss in college opportunity in the absence of corrective actions by the Governor and the Legislature.

CPEC staff analyzed results of CSU's participation in the national Access to Success initiative, its Early Assessment Program, and English and math proficiency testing.

Access to Success Graduation Initiative

The California State University is participating in a national effort called Access to Success. CSU seeks to raise the freshman six-year graduation rate by 8 percentage points by 2015–16 and reduce the gap in degree attainment for underrepresented student groups (Blacks, Latinos, and American Indians). Currently about 50% of entering freshmen graduate within 6 years. All CSU campuses have established graduation targets equal to or exceeding rates comparable to the top quartile of national averages for similar institutions.

Finding. Based on recent improvements in the six-year graduation rate, CPEC estimates the freshman 12-year graduation rate to increase from 58% in 1995 to 62% in 2012 and to 66% by 2015. Graduation rates by ethnicity are in Display 4 on page 9. Chancellor Charles Reed recently announced that nearly all 23 campuses are meeting or exceeding annual targets.

CPEC staff conducted an independent analysis of recent cohorts of entering CSU freshmen and confirmed the level of progress cited by Chancellor Reed. To support long-range planning, *Student Success in Higher Education is Everybody's Business* addresses several research questions related to matriculation:

- How do improvements in graduation and persistence rates affect the flow of entering freshmen?
- Given improvements in six-year graduations, what is the expected total freshman graduation rate for 2015?
- Would additional enrollment growth funding be required to support increased numbers of students persisting to graduation?
- What are some of the salient consequences of underfunding student success?

To model the effect of improvements in persistence and retention, staff developed a student flow model with two scenarios: one where rates are held constant; the other where rates improve.

Display 23 CSU – Time-to-Degree of First-Time Freshmen, 2000 Cohort

Asian	6.5 years
Black	6.7
Latino	6.5
American Indian	6.2
White, other	6.1
Males	6.5
Females	6.2
Average	6.3

Time-to-degree developed by CSU Office of Analytic Studies.

$$\sum_{i=1} pi\,(Xi - 1 + 0.75)$$

X = Graduation time interval

P1 = Percentage of students graduating in X time interval

The constant rate category is based on the continuation patterns of the CSU 1995 first-time freshmen, tracked for 12 years through 2007. The category pertaining to improved rates is based on the continuation patterns of the 2000, 2001, and 2002 freshman cohorts by ethnicity.

CSU is responsible for serving significant numbers of part-time students and uses a 12-year time frame when tracking cohorts of freshmen from entry through degree attainment. As shown in Display 23 above, the average time-to-degree is about six years. The average-time-to-degree is shorter when considering full-time students.

If the tracking period were limited to six years, the model would understate CSU bachelor's degree production.

Display 24 on page 24 shows the relationship of instructional cost per degree and student persistence. Although the example is based on the White ethnic group, persistence modeling was undertaken for each specific ethnic group. The second and third columns model student flow and instructional costs based on improved persistence rates. The remaining columns hold persistence constant.

Both scenarios begin at year 0 with 1,000 first-time freshmen. Over the 12-year period, the number of freshmen decreases, as students graduate or discontinue their studies permanently.

Display 24 also shows instructional marginal costs, graduation rates, total degrees, and the average instructional cost per degree, which is the cost divided by degrees. The average CSU undergraduate unit load is 13 units, which represents 0.87 FTES. Accordingly, the current marginal instructional cost per FTES of $10,398 was multiplied by 0.87 to derive a benchmark instructional cost of $9,012 per headcount student. In the scenario with improved degree completion, the state spends $3.7 million less over the 12-year period, and receives 55 more degrees than produced by a cohort with no improvement in persistence and graduation. When graduation rates do not improve, the average cost per degree is $13,600 higher. In the scenario where graduation rates improve, the state is able to buy more degrees per dollar.

CPEC's analysis was conducted across all ethnic groups and supports a general conclusion that slightly higher investments in enrollment funding are required in the near-term to support improvements in student persistence. In the long-term, state resources are used more efficiently in several ways.

- Because the state is in effect buying degree completion, the return on investment is greater when more students persist to graduation.
- As students complete degrees more rapidly, state resources are freed up to enhance access on the front end.
- More marginal cost funding is needed when students move more slowly through the system.
- As graduation rates improve, the state is able to buy more degrees per dollar.

Display 24 Model of persistence and instructional marginal costs

	Persistence rates improve		Persistence rates held constant	
year	Enrollment	Instructional cost	Enrollment	Instructional cost
0	1,000	$9,012,000	1,000	$9,012,000
1	836	$7,534,042	852	$7,678,224
2	750	$6,759,999	772	$6,957,264
3	725	$6.533,700	732	$6,596,784
4	482	$4,343,784	581	$5,235,972
5	168	$1,514,016	281	$2,532,372
6	72	$648,864	137	$1,234,644
7	40	$360,480	76	$684,912
8	25	$225,300	42	$378,504
9	16	$144,192	24	$216,288
10	9.3	$83,812	15	$135,180
11	2.6	$23,431	12	$108,144
12	0	0	10	$90,120
Total cost		$37,182,611		$40,860,408
Graduation rate		70.8		65.3
Degrees awarded		708		65.3
Average cost per degree		$52,518		$62,573

CPEC analysis. Results are for White students only.

A one factor linear–log regression model was used to estimate the nine-year graduation rate for 2015 as a function of improvements in six-year graduation rates by ethnicity.

Researchers often employ a linear–log regression model when it is believed that an outcome variable of interest will taper off instead of rising indefinitely at a constant rate. Such is the case with graduation rates. It is unlikely empirically that total graduation rates will ever reach 100%, no matter how much a system improves its six-year graduation rate.

The model estimates the freshman total graduation rate to increase from 58% to 62% in 2012 and to 66.0% by 2015. The increase represents an eight percentage-point success rate. By ethnicity, rates increase from 39% to 53.5% for Black students; 61% to 70.3% for Asian students; 52.0% to 55.9% for Latino students; 52.4% to 57.2% for American Indians; and 65.3% to 70.8% for White students.

The graduation estimates should be regarded as informed guesstimates because the Commission currently has limited student-level historical data for CSU and UC for use in complex analyses.

Graduation Rates by Ethnicity and Gender

CPEC data and data obtained from the National Center for Education Statistics indicate that males tend to have lower graduation rates than females. Although the difference is alarming in many instances, it does not appear that institutions are developing intervention programs to reduce the disparity.

For the 2000 freshman cohort, the most glaring gender difference in graduation is the Asian category, with 72.4% of Asian females persisting to graduation within nine years, compared with 58.2% of Asian males. The ethnic group with the least gender difference in completion is the American Indian category, with 50.3% of the females graduating within nine years, compared with 44.4% of the males.

A 2006 CPEC study found that women were enrolled and earned degrees at a higher rate than men in each ethnic group and higher education system, a trend that began roughly in 1980 and has grown ever since. This trend is found in many undergraduate disciplines and professional graduate programs such as law, medicine, and optometry.

The gender gap between males and females in higher education has been observed in universities in colleges throughout the United States and Europe. According to the National Center for Education Statistics there were 2.5 million more women than men enrolled in degree-granting institutions in 2007. Over past several decades in the United Kingdom women have also overtaken men in terms of higher education enrollment.

Research examining the gender gap in higher education has produced a number of interesting findings. Studies have found that the gender gap in higher education enrollment and degree attainment is largest between Latino and Black males and females. Some have also identified a socioeconomic effect that is intertwined with the gender and ethnicity where the gap between males and females is most pronounced for those from low socioeconomic backgrounds.

Researchers have also found that a gender gap is visible in high school graduation rates, not just in higher education. Some have highlighted the importance of immigration status, gender differences in student engagement on campuses, and the role of gender stereotypes in academic disciplines and occupations on the decisions males and female make. Some studies are beginning to look at cognitive and psychological processes that affect learning, and potential interactions with gender.

CPEC recommends that CSU and UC develop goals for reducing gender disparities in freshman and community college transfer graduation rates and that those goals be shared with LAO and the Legislature.

Early Assessment Program

The Early Assessment Program is a partnership between CSU, the California Department of Education, the State Board of Education, and participating community colleges. The program assesses readiness for college-level English and math skills during students' junior year of high school. Test results are shared with students so that they have an opportunity to correct any identified deficiencies during their senior year.

The EAP consists of an expanded version of the California Standards Test in English and math. The math portion is open to students who completed or are enrolled in algebra II or summative high school math. For the English test, students are either proficient or not proficient. For the math test, students are college ready; conditionally ready (they must take an additional math course), or not ready. Of the juniors who took the CST in 2010, 84% took the EAP English test.

Of the juniors who took the EAP English test, 21% were proficient, which was an improvement over 2009, when 16% were proficient. Of the students who took the EAP math test, 15% were college-ready, and 42% were conditionally ready.

CSU and the community colleges have a data-sharing agreement that allows community colleges to access EAP information and test results to support outreach and research. The community colleges chancellor's office, with the Butte Technology Center, developed a secure database for designated college staff to download student EAP data for a campus' feeder high schools. In 2009, the community colleges began using EAP results to exempt students from placement testing. Only community colleges that accept EAP test results can download 2010 EAP data.

Math and English Proficiency Results for First-Time Freshmen, 2004–09

The percentage of freshmen proficient in math, and therefore not needing math remediation, has remained flat at about 63%. Proficiency of males is 73%, and females at 55%. This is of concern because the future representation of females in math- and science-based occupations will be influenced by the level of female math performance. By ethnicity, the rate for Black students in 2009 was 30 percentage points below the mean, while rates for Latino and Pacific Islander students were about 14 percentage points below the mean. The Commission is recommending that CSU initiate a state-level discussion with high school math instructors regarding female and Black student math proficiency. It is anticipated that the discussion will result in a better understanding of math proficiency among female and black students so that collaborative improvement arrangements can be established. See proficiency results in Display 8 on page 11.

English proficiency changed only slightly from 2004 to 2008, and slipped from 53% to 51% from 2008 to 2009. The disparity by gender is not nearly as large as it is for math. All ethnic groups except the White and Filipino categories are below the mean by more than seven percentage points. Of particular concern is the African American ethnic group, which is below the mean by 22 points, and the Mexican American and Pacific Islander groups that are below by about 15 points.

Display 25 CSU freshmen proficiency in mathematics, 2004–09

	2004	2005	2006	2007	2008	2009
American Indian	63.8%	64.9%	64.7%	67.3%	59.6%	59.6%
African American	35.1	37.3	34.7	36.1	35.9	32.1
Mexican American	46.8	48.0	47.4	48.2	48.8	48.2
Other Latino	47.5	50.0	46.5	46.2	44.9	48.1
Asian American	69.8	70.4	70.9	73.3	73.9	73.8
Pacific Islander	58.4	62.3	59.3	59.8	58.2	44.9
White Non-Latino	74.6	75.1	74.0	74.6	74.9	75.4
Filipino	60.0	64.0	63.4	64.0	65.7	65.4
Female	55.4	55.8	54.2	54.9	55.5	54.7
Male	74.2	75.0	74.1	73.5	72.9	72.9
All students	63.2	63.8	62.5	62.8	62.8	62.4

Source: CSU Office of Analytic Studies. California residents only.

Display 26 CSU Freshmen proficiency in English, 2004–09

	2004	2005	2006	2007	2008	2009
American Indian	58.8%	63.5%	64.4%	66.1%	65.1%	42.6%
African American	32.6	35.8	36.8	34.6	34.1	28.8
Mexican American	34.9	37.7	38.0	37.1	36.1	35.4
Other Latino	41.2	42.4	41.3	40.1	40.2	40.5
Asian American	38.5	41.1	41.8	43.9	45.7	43.1
Pacific Islander	45.4	50.6	49.4	48.2	46.6	36.5
White Non-Latino	72.0	74.0	74.0	73.3	71.8	71.3
Filipino	45.0	47.6	48.3	46.6	47.1	45.1
Female	51.5	53.2	53.5	52.4	51.8	49.1
Male	55.9	57.1	56.5	55.7	54.6	53.4
Total	53.4	54.8	54.7	53.8	53.0	50.9

Source: CSU Office of Analytic Studies. California residents only.

California Community Colleges

The California Community Colleges is the nation's largest higher education system, with a fall 2010 headcount enrollment of 1.75 million students. The community colleges are responsible for lower-division academic instruction, occupational and career technical training, adult education, remedial and basic skills education, and community service and vocational programs. CPEC's enrollment demand study indicates that demand for slots at the community colleges will increase from 1.82 million in 2009 to 2.14 million in 2019. This means that the state should prepare at a minimum for 313,000 additional students above the fall 2008 peak enrollment level. The state's current economic circumstances will likely result in a significant loss in college access.

California Basic Skills Initiative

Community college systems across the nation consider basic skills education the foundation of student success for students needing remediation before they advance to college-level coursework. The Basic Skills Initiative helps underprepared and ESL students acquire an ability to read, write, and speak English, and acquire basic computational skills below algebra needed to succeed in college and the workplace.

The program is an outgrowth of the system's 2004 strategic planning process. In 2007, Assembly Bill 194 (chapter 487) provided $33.1 million in supplemental funding to support basic skills education, and required accountability for outcomes resulting from this funding. The California Budget Project reports that in 2009–10, the community colleges received $596.7 million in total local and state funding for basic skills education. The total includes supplemental funding.

Community college researchers reviewed more than 250 articles on basic skills and developmental education to identify core elements that commonly characterize effective programs. Those elements pertain to organizational and administrative practices, programmatic components, staff development, and instructional practices.

Examples of what the literature cites as best practices:

- Effective organizational and administrative practices include highly integrated academic and support services. Developmental education is a clearly stated institutional priority, and a shared overarching philosophy drives programs. Institutional policies facilitate students completing developmental coursework as early as possible in the educational sequence.
- Vital program components include mandatory orientation, assessment, and placement for all new students; regular program evaluations with results disseminated widely to improve program performance; and counseling that is substantial, accessible, and integrated with academic courses and support programs.
- Faculty development practices involve an administration that supports and encourages faculty development in basic skills instruction. Improvements in teaching and learning are connected to the institutional mission. Staff development opportunities are flexible, varied, and responsive to the needs of faculty, diverse student populations, and to the needs of programs and services that are coordinated.
- Effective instructional practices use learning theory principles in designing and delivering developmental courses. Culturally responsive teaching theory and practices are applied to all aspects of developmental programs and services.

The Commission believes that scaling the aforementioned best practices on a system-wide basis is an evolving process; consequently, it is not surprising that early results show limited progress: The 2010 basic skills course completion rate of 61.5% has remained unchanged since 2008. Somewhat promising is that the percentage of students completing a higher level basic skills course after completing a lower level one increased from 50.0% in 2008 to 53.8%. The California Budget Project found that:

- Basic skills students require approximately one additional year to earn a vocational certificate or an associate degree and nearly 1.5 additional years to transfer, compared with non-basic skills students.
- 58.6% of basic skills students wait until after their first college year to enroll in a basic skills course.
- Only 8.8% attend college full-time.

The CBP recommended integrating California Department of Education's Adult Education Program the community colleges' Basic Skills Program of the California Community Colleges, either through common governance, or through well-coordinated regional networks.

CPEC is not certain that a common governance structure would work, given the enormous challenges cited by CBP. According to CBP, competition for students can drive a wedge between programs, federal policies make it difficult to use common assessment tools, CDE and the community colleges serve somewhat different types of students, and there are differences in pedagogical approaches and institutional cultures between CDE and the community colleges.

CPEC believes the Community College Task Force on Student Success is the appropriate entity to take in the lead in addressing coordination and governance issues.

Course Completion Rates

Completing courses with at least a C grade is a major, if not the most important, performance milestone that students seek to attain sequentially as they advance through the educational system. A laudable goal for the system to work towards is incremental improvements that culminate in a 100% success completion rate for all demographic students groups. Students who consistently earn low grades are more likely to be discouraged from continuing their education and realizing their educational goals.

The community colleges' data tool was used to assess course completion success. The proportion of students who completed degree-credit courses with at least a C grade has remained flat at 67%. There are no discernable differences by gender, but rates vary by ethnicity, with Asian students having the highest rate (74.4%) and Black students having the lowest (55.3%).

Completion rates were assessed in math and science courses because many students experience difficulty in completing those courses satisfactorily. The physical sciences include astronomy, chemistry, earth science, and physics. These disciplines poses similar cognitive challenges to students in that they have experimental features and require students to make observations, take measurements, draw inferences, and construct solutions to problems.

Somewhat surprising, the mean completion rate with a C or better in the physical sciences is comparable to the rate for other disciplines. A different picture emerges when disaggregating results by ethnicity. Black students continue to lag below the physical science completion mean by 16 percentage points, Latino students by 7 percentage points, and Pacific Islander students by 8 points.

Staff were unable to assess the percentage of students earning at least B grades in instructional fields, because the data tool limits the analysis to C grades or better.

Data Mart

The Data Mart allows users to download information on headcount and FTES enrollment, student success outcomes, student demographics, and staff reports. Many of the success measures can be disaggregated by gender, ethnicity, age group, credit status, and instructional modality.

Course completion data captures completions with C grades or better. The Commission believes it important that policymakers and the public be able to assess progress in the proportion of learners excelling in courses by earning a B or better. It is equally important to be able to determine the degree of differences in high grade performance by demographic factors. Currently, only one demographic factor can be used in an analysis at a time.

CPEC recommends an enhancement to the website that would enable users to download success measures with multiple demographic factors, while protecting data quality and confidentiality.

Degree and Certificate Completion

Determining which students enroll with the intent to earn a degree or transfer is problematic. Upon admission to community college, students indicate their educational goal. But researchers have found this information unreliable for several reasons: first-year students are often not certain of their primary goal, goals often change over time, and some students are likely to select what they consider to be the most popular option. The degree completion rate, therefore, varies depending on how a researcher defines a degree-seeking cohort to track over time.

Immediately following the release of *Divided We Fail* (Colleen Moore and Nancy Shulock, Institute for Higher Education Leadership & Policy, 2010), media headlines stated that 70% of degree-seeking community college students fail to earn a degree or transfer to a four-year institution within six years. No doubt the general public had concerns regarding the need for increased community college funding given this success rate. The authors defined a degree/certificate seeking student as any student that enrolled for the first time in the 2003–04 academic year and who completed at least six units during the year.

CPEC staff adopted a different methodology because thousands of students enroll each year at a community college campus with a goal other than to earn a degree or certificate or to transfer to a four-year institution. In defining the cohort for analysis, the tracking period was increased to nine years to capture part-time students and working adults who take longer than six years to complete degree requirements.

The cohort studied consisted of first-time freshmen aged 17 to 19, who enrolled in a community college for the first time in 2000 and who attempted 9 or more units in 2000–01. Students enrolled concurrently in a high school or a four-year institution were excluded. Of this cohort group, 22.7% earned a degree or certificate by 2009. While the CPEC estimate of certificate and degree completion is about 7 percentage points higher than estimated in *Divided We Fail*, both are very low by any standard. The Commission is pleased that a number of efforts are underway to improve completion rates.

Transfer to Four-Year Institutions

Community college transfer is a key component of student access by providing high school graduates a second chance at a baccalaureate education, for those who did not initially meet CSU and UC admission requirements.

The transfer function also serves older students who elect to complete their lower-division course at a local community college before transferring to a four-year institution to complete upper-division courses. Until the community college system is able to improve the reliability of the student goal indicator, the Commission believes the methodology used by the Chancellor's Office to define a transfer cohort is the most valid way to estimate transfer rates.

The method, developed by community college researchers, involves tracking the enrollment behaviors of entering students. When those students exhibit "behavioral intent to transfer," they are identified as a prospective transfer student and assigned to a cohort based on the year they entered, and tracked over time. Behavioral intent to transfer means that within six years of initial enrollment, a first-time student has completed 12 credit units and attempted transfer-level math or English.

Of the 2000 transfer cohort, 53% transferred to four-year institutions within 10 years, and 46% transferred within seven years. These rates are much higher than typically cited and include transfers to California independent institutions and to out-of-state institutions. They have remained virtually unchanged over the past as shown in Display 16 on page 17.

Before 1990, UC and CSU admitted community college students who had not completed 56 units if they were admissible directly from high school. Since 1990, prospective transfers generally must complete 56 units and satisfy all lower-division admission requirements. Given this change, current transfer rates are not comparable to those before 1990.

Community College Task Force on Student Success

Senate Bill 1143 (Liu) was chaptered into law in September 2010. The law required the California Community Colleges Board of Governors to establish a task force to examine best practices for promoting student success, and to adopt a plan for improving student success outcomes.

In January 2011, the chancellor's office launched its Task Force on Student Success. The task force includes faculty, researchers, college presidents, campus-based practitioners, district chancellors, and other community college advocates. Members have been engaged in identifying appropriate success measures and assessment strategies; uncovering regulatory barriers to student success and completion; reviewing literature to determine best practices; comparing alternative funding options used by other states to fund best practices and how those practices could be implemented in California; and considering how effective uses of technology could be used to help promote, evaluate, and improve success rates.

In July 2011, the task force transitioned from research, analysis, and synthesis to developing preliminary recommendations. Town hall meetings will be scheduled across the state to allow public input. In December 2011, final recommendations will be submitted to the Board of Governors.

The task force has a website with presentation materials, agendas, information on task force members; reports and studies related to student success; and a public comment page. Users can post ideas for consideration by task force members.

Center for Student Success Promising Practices Archive

The Research & Planning Group for the California Community Colleges provides case studies at its *Center for Student Success Promising Practices Archive,* css.rpgroup.org. Users can find best practices in student success, student diversity, learning assessment, and health occupation training programs. In student success there are topic areas on course success, certificates and degrees, basic skills improvement, transfer success, workforce education, and student persistence. Case studies include example programs and practices with costs and evidence of impact and success cited for target groups. The website encourages faculty and practitioners to post program costs and evidence of impact and success.

CPEC staff found most of the examples contain only general statements about program impact and success. However, links are provided to more information from the host campus and faculty members responsible for developing the practice. See box, page 32.

University of California

The University of California is comprised of nine general campuses and one health science campus. In fall 2010, the system served 223,105 graduate and undergraduate students and offered programs in nearly 300 academic disciplines and fields. The Master Plan accords UC the exclusive public responsibility for doctoral education in law, medicine, dentistry, and veterinary medicine. Undergraduate demand is expected to increase from 173,000 in fall 2008 to more than 193,000 by 2019. This means the state should prepare for more than 20,000 additional undergraduates.

CPEC is unaware of student success studies by external entities that have focused on undergraduate outcomes at UC. There appear to be at least two reasons for this. Foremost, it is generally felt that because UC admits "the brightest and the best," student outcomes are likely to be exemplary.

Student success programs and best practices

Foothill Community College – Pass the Torch

Structured study team system designed for students enrolled in basic skills English, math, and ESL courses. Students are referred to as team members and are led by team leader students who received an A in the course or another higher level course.

Team leaders are supervised by English and math instructors and receive training on how best to encourage students to adopted effective study skills and strategies needed to master course material. Between 1996 and 2000 the program was found to have a moderate impact with 82% of students completing courses and 79% competing courses with a C grade or better.

Fullerton College – Transfer Achievement Program

Basic Skills English and Math courses, student persistence, degree completion, and transfer. The program involves a wide range of disciplines and faculty. Students are assigned to a learning community and advance through a series of designated courses with the same community of learners. Students in a specific learning community are guaranteed enrollment in selected courses. Supplemental instruction is provided by peer tutors.

The student learning community has access to counselors who work directly with faculty in each course. Students participating in the program are reported to have higher course retention, graduation, and transfer rates than students not participating in the program.

Santa Ana College and St. Joseph's Hospital – 21-week registered nursing program

Courses are held in the evening and on the weekends. Hospital employees receive enrollment priority, and their books and most fees are covered by the hospital. Clinical work is done at the hospital. A Santa Ana College MSN skills lab instructor provides student support through remediation and instructional support at the hospital's mini skills lab. The hospital's medical library is available to students 24 hours a day, 7 days a week.

While no specific impact of success is reported, 66% of students report previous experience in occupations considered a career ladder to nursing degree attainment. This helps validate the purpose of the program of career ladder growth opportunities for health care workers.

Mt. San Antonio College – Bridge Program

For academically unprepared or economically disadvantaged students. It is designed to increase student academic and personal success by structuring the learning environment in specific ways. Student participants enroll in linked or clustered classes that are taught by instructors in a collaborative environment. Students are supported by staff, counselors, and advising specialists.

Advising includes information on transfer requirements and financial aid. Program developers report increases in basic skills completion rates, and persistence rates in English and math courses, but no results were posted.

Sierra College – Writing Center

Provides learning resources to supplement coursework. Resources include individual instruction, self-paced learning materials, computers and software to help students compose essays, and advice and materials that aid students in assignments that require a research format.

The college estimates that the center serves over 250 students per day. Even on days when large numbers of students wish to use the center, wait times are short because of dedicated staff members. Over a three-year period, students who used the writing center earned an overall GPA of 2.85, whereas those who did not use the center earned a 2.79 GPA. About 74% of the students who used the writing center completed courses with at least a C grade in fall 2003, compared with a rate of 61% for those who did not use the center.

Source: Center for Student Success Promising Practices Archive at css.rpgroup.org.

Second, researchers express a more urgent need to focus attention elsewhere, such as on basic skills and degree and certificate completion at the community colleges.

UC is the most selective public higher education system in the state, and faculty and the Board of Regents have long understood that socioeconomic status, when not addressed properly, can often affect student achievement negatively, even for disadvantaged students with exceptional academic talent. That socioeconomic status continues to influence student achievement means that its effect is not easy to overcome. Through fair admission policies and academic preparation programs, UC has worked to be more inclusive. To a large degree, this has been accomplished through the investment of human capital.

The basic philosophy of its academic improvement programs is that demonstrative progress is best sustained by collaborative alliances that include public and private university systems; K-12 system; and private business and philanthropic partners. Within this philosophy, human capital refers to the range of short-term, intermediate, and long-term intervention programs and initiatives that assist students in overcoming educational and socioeconomic disadvantages so that learning, academic achievement, and college-going behaviors are maximized. CPEC estimates Black and Latino freshman demand to increase by 16,000 by 2019 with adequate enrollment growth funding. Many of these students are expected to come from economically disadvantaged backgrounds.

The UC Office of the President's StatFinder website provides information for a variety of user groups. CPEC staff used this site, along with the CPEC longitudinal data system, to assess student success outcomes for UC. Discussions and analyses consist of graduation rates by ethnicity and gender; graduation rates by ethnicity and family income; graduation rates by family income and high school grade-point average; UC grade-point average by gender and ethnicity; and UC community college transfer graduation rates by gender and ethnicity.

Graduation Rates and Grade Performance by Selected Demographic Factors

Similar to CSU, graduation rates are higher for females within each ethnic group. For the 2002 UC freshman cohort, the most glaring gender difference in graduation is the Black student category. 78.4% of Black females graduate in 7 years, compared with 68.1% of Black males. Asians and Whites have the least gender difference. UC graduation rates are shown in Display 18 on page 19.

Family median income for UC students is higher than it is for CSU and community college systems. CPEC staff used the UC StatFinder to determine how family income affects the freshman graduation rate. As shown in Display 20 on page 20, the difference between the $120,000 and the $40,000 income categories is most pronounced for American Indians.

The income effect tends to persist, even after controlling for prior high school grade point average as a measure of scholastic preparedness and achievement. Within each high school GPA category, six-year graduation rates are higher for students whose family income is $120,000 or more, as shown in Display 21 on page 21.

Another important measure of student success is grade-getting performance. Display 18, on page 21, helps to understand how grade-getting performance changes as students persist to graduation. The data also help detect possible differences by gender and ethnicity.

Commission staff found mean grade point averages at graduation are higher than they were following students' first year of matriculation. This finding is noteworthy because it means that grade performance improves as students take more challenging courses and persist to graduation. It could also mean that grades are higher towards the end of a student's undergraduate experience because coursework is primarily in one's major field of concentration. GPAs are fairly comparable by ethnicity, aside from the white female cumulative GPA of 3.33.

UC community college transfer graduation rates show gender differences, but not nearly to the extent showed for freshman graduation rates. One positive finding is that graduation rates for Black and Latino male transfers are just a few percentage points below the corresponding female rates. Of potential concern is the American Indian category, with males of the 2002 cohort persisting to graduation 14 percentage points below the female rate. A similar result is shown for the 2000 cohort. Because American Indians only represent about six-tenths of a percentage point, the results for the ethnic group should be interpreted with a degree of caution.

Independent Universities

California's 76 independent non-profit colleges and universities provide a wide range of degree and certificate programs. In fall 2008, the independents served 241,000 undergraduate and graduate students. CPEC estimates undergraduate demand for the independents to increase by about 16%, from about 130,000 students in fall 2008 to approximately 150,000 in 2019.

The independent sector includes major research universities, such as Stanford and the University of Southern California; comprehensive institutions, such as University of San Diego and University of San Francisco; liberal arts colleges, such as Mills College and Pitzer College; art colleges, such as the San Francisco Conservatory of Music; and specialized and graduate and professional institutions, such as Claremont Graduate University and Touro University.

Association of Independent California Colleges and Universities, Student Success Survey

In March 2011, AICCU conducted a survey of six member institutions to determine the programs, practices, and initiatives institutions are engaged in to enhance student success. Although the response rate was low, it is helpful to review the range of standard and innovative improvement strategies cited in the surveys. Institutions that reported programs aimed at improving student success also report that they have seen a steady increase in retention rates over the past three to five years. Display 28, on page 35, shows the range of student success efforts institutions are providing.

Member institutions that participated in the AICCU survey reported some of the student success metrics used on campuses. These include persistence by unmet financial need, residency status, admissions status, number of students on academic probation, number of graduates with honors, and the number of alumni employed.

Display 28 AICCU survey on methods to improve student success

- Switching to a staff-advising model (from faculty advising model) so students have more access to academic advising and support
- Offering a workshop intervention around setting goals and making an action plan for success for students on academic probation.
- Developed first-year experience programs with students taking two classes together and living together in and living-learning community (commuters have full access)
- Developing an electronic early alert program that allows faculty, staff and students to send reports for students of concern
- Targeting tutoring for student athletes
- Additional writing support for students admitted on provisional basis
- Requiring academic coaching and tutoring for students on academic warning or probation
- Specific programs for first generation students
- Expectation of involvement by first-year students in the co-curriculum
- Early identification and preparation of students for pre-graduate and post-graduate fellowships and undergraduate research
- Holds placed on registration for students not declaring a major, and identifying an advisor by the second semester of their sophomore year
- College transition course offered to all first-year students
- First-year experience courses
- Developing writing, mathematics and advising centers
- Peer tutoring services

Survey conducted by AICCU research staff in March 2011 with six member institutions reporting.

Display 29 AICCU survey of student success measures

- Comprehensive examinations
- Yearly retention and persistence
- Transfer student persistence
- Persistence by athletic status
- Persistence by admit quartile
- Persistence by financial need status
- Persistence by race and ethnicity
- Persistence by residency status
- Graduation rate
- Persistence and retention by academic probation status
- Formative assignments evaluation (practice tasks)
- Number of students graduating with honors
- Post-graduation surveys
- Alumni surveys
- Alumni employed

Survey conducted by AICCU research staff in March 2011 with six member institutions reporting.

Benefits of Qualitative Research on Student Success Analyses

Prior to 1965, qualitative inquiry was limited primarily to the fields of anthropology and sociology. More recently, rigorous qualitative methods have emerged from multiple disciplines, including education, social work, nursing, political science, psychology, management science, communications, consumer product studies, women's studies, and disability studies.

With respect to student success, qualitative approaches would seek to investigate, understand, describe, and interpret success outcomes using one or several of the following frameworks: ethnography, phenomenology, case study, critical narrative, sociolinguistics, grounded theory, and feminist theory. Data sources include direct classroom observations, in-depth personal interviews, focus-group research protocols, open-ended survey responses, and current and historical institutional documents and reports. Regardless of the qualitative inquiry adopted, emphasis is placed on context, culture, language and behavioral gestures, lived experiences, symbolism and customs.

Despite the general acceptance of qualitative research as a legitimate scientifically-based method of inquiry, many public officials and institutional researchers still consider the use quantitative methods and data to be the only valid way to assess and evaluate program impact and effectiveness. Provided that issues of trustworthiness and credibility are properly addressed, qualitative methods have the enormous potential to be used effectively by researchers to obtain, analyze, and interpret in-depth information on student success as it is manifested in real-life learning and teaching contexts.

The Commission recommends that educational researchers place more emphasis on the use of qualitative methods as an effective and valid strategy for assessing student success, and that public officials encourage such practices. A hybrid or mixed methods approach to research that involves qualitative and quantitative methods will provide a more robust picture of student success.

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