

**WHO LEAVES UC SANTA CRUZ AND WHEN?
RETENTION AND GRADUATION AMONG FRESHMEN COHORTS**

December 2011

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EXECUTIVE SUMMARY

UC Santa Cruz's six-year freshmen graduation rate has been gradually and steadily improving over the past decade, reaching a campus high of 74 percent last year. However, first year retention rates, an early indicator of eventual graduation rates, have been holding steady at about 89 percent for the past six years, a strong indication that the campus's graduation rates are also likely to level off. Of the eight UC undergraduate campuses excluding Merced, only Riverside has a graduation rate lower than Santa Cruz's. Our freshmen retention and graduation rates are also below the mean for all institutions classified by Carnegie as very high research, a group to which we belong, and all AAUs without medical schools, an aspirational peer group. However, UC Santa Cruz's actual six-year graduation rates exceed regression based predicted graduation rates based on demographics and preparation levels of the students enrolled.

First and second year retention rates at UC Santa Cruz tend to be similar across race/ethnicity and gender, as well as levels of academic preparation as measured by both High School GPA (HSGPA) and SAT scores. Differences between student groups emerge in eventual six-year graduation rates: underrepresented students of color, men, and students with lower HSGPAs and SATs graduate at lower rates. However, graduation rate gaps by race/ethnicity tend to be smaller at UC Santa Cruz than at most other UC campuses, and regression based modeling predicts that the gaps would be larger than they are. Similarly greater differences between students based on SAT scores and HSGPA are expected based on statistical modeling.

Across students' careers, low academic performance is consistently one of the best predictors of attrition. By contrast, the relationship between high academic performance and attrition varies by socio-demographic characteristics and subjective experiences, as well as across students' academic careers. Lower levels of overall satisfaction and belongingness are associated with greater attrition after the first two years, while perceiving lower gains across a variety of domains was associated with greater attrition after the third year. When academic performance and preparation are taken into account, students of color are usually more likely to be retained than White students. In general, students of color are less deterred by earning a lower GPA, and are more likely than White students to benefit from perceived academic gains.

Achieving the campus goal of improving first year retention by two percent and reducing attrition after the second year to less than 10 percent will require a comprehensive strategy aimed at improving retention in key areas, including early identification and intervention for low academic performance, opportunities for academic challenges, and finding ways to ensure that students who are retained to the upper division are able to "make it across the finish line."

INTRODUCTION

Improving UC Santa Cruz's six year graduation rate—by increasing first year retention by two percent and reducing attrition after year two to less than ten percent—is one of Executive Vice Chancellor/Campus Provost Galloway's "5 for 2015" goals for undergraduate education. This reflects and extends the campus's commitment to better understand and improve retention that was articulated as part of our last reaccreditation self-study¹. Achieving these goals will require a comprehensive strategy grounded in an evidence-based understanding of our specific retention issues.

This paper provides an overview of what we know about freshmen retention and graduation rates at UC Santa Cruz, and it describes the results of a statistical analysis of retention and attrition patterns across students' academic careers. A review of trends in overall campus graduation rates, as well as comparative statistics from other institutions, is provided. For context, results of a regression-based analysis of UC Santa Cruz's actual graduation rates relative to predicted rates based on student demographics are presented. Breakouts by demographics, college, and academic preparation are also reviewed. Finally, an analysis of retention patterns based on academic performance and preparation, student demographics, and subjective experiences at four consecutive time points following entry is described. Implications for strategies for improving retention rates to meet the campus's retention goals are discussed.

BACKGROUND

UCSC's most recent six-year graduation rate for the freshmen cohort entering in 2004 was 74 percent, a campus high that reflects gradual but steady improvements in early retention rates through the middle of the last decade. Among recent cohorts², roughly 10 to 11 percent of freshmen did not return for a second year, another 10 to 11 percent did not return for a third year, and approximately six to seven percent more did not graduate within six years. Since 2003, one- year retention rates have leveled off at ~89 percent. Because the eventual graduation rates of entering cohorts are closely related to rates of retention in the early years, graduation rates are likely to flatten out at the current level into the foreseeable future without specific campus intervention.

¹Retention and graduation were addressed in both our Educational Effectiveness and Interim reports to WASC as part of our last accreditation review available at:

<http://planning.ucsc.edu/wasc/>

² Detailed retention and graduation rate tables for entering freshmen cohorts are posted at:

[http://planning.ucsc.edu/irps/Enrollmt/retain/2010_11/Frosh\(2010-11Tables\).pdf](http://planning.ucsc.edu/irps/Enrollmt/retain/2010_11/Frosh(2010-11Tables).pdf)

UC Santa Cruz's Graduation Rates in Context

UC Santa Cruz's graduation rates are among the lowest in the UC system, despite recent improvements (Table 1). For the most recent years, these rates were below means for eight UC general campuses, institutions classified as very high research by Carnegie, and AAU institutions without medical schools. The gap between the UC Santa Cruz rate and these means is 5 – 11 percent, depending on the year and comparison group. In the UC system, only UC Riverside's six-year graduation rates are lower than UC Santa Cruz's³.

TABLE 1
Retention and Graduation Rates of Selected Institutions*

Cohort Entry Year	1 Year Retention			6 Year Graduation		
	2006	2007	2008	2001	2002	2003
University of California-Santa Cruz	89	88	89	68	72	73
University of California-Berkeley	97	97	96	88	90	90
University of California-Davis	91	90	92	79	81	80
University of California-Irvine	94	94	94	80	81	82
University of California-Los Angeles	97	97	97	90	89	89
University of California-Riverside	83	84	87	66	64	65
University of California-San Diego	95	94	95	84	85	84
University of California-Santa Barbara	91	91	91	80	81	80
UC Mean	92	92	93	79	80	80
Carnegie Very High Research Mean	90	90	91	77	77	78
AAU nonmed Mean	91	91	91	79	79	80

*Source: IPEDS⁴

It is possible that some of these disparities could be explained by differences in institutional selectivity and in academic preparation and demographic composition of the student body. In a 2005 national study of graduation rates at 262 four-year institutions, the Higher Education Research Institute⁵ (HERI) at UCLA identified student characteristics most predictive of graduating: high school GPA (HSGPA), SAT scores, gender, and race/ethnicity. To test how UC Santa Cruz's graduation rates relate to the characteristics of the particular students we enroll, we applied the regression weights derived in the national study to our

³ Rates are not yet available for UC Merced.

⁴ <http://nces.ed.gov/ipeds/datacenter/>

⁵ <http://www.gseis.ucla.edu/heri/>

students. We constructed predicted graduation rates to compare to our actual rates, providing another way to measure UC Santa Cruz's graduation rate performance that complement direct comparisons to other institutions.

In 2006 we compared predicted vs. actual graduation rates of 1994 through 1998 freshmen cohorts⁶, the five most recent cohorts for whom we had six-year graduation rate data. For every entry year, UC Santa Cruz's rates were at least equal to or slightly higher than predicted based on student characteristics at entry. In a more recent analysis of the 1998 through 2002 cohorts⁷, we found that predicted rates were relatively stable across the five cohorts at between 65 and 67 percent, even as our actual six-year graduation rates improved from 69 to 71 percent over the same period. This means that our improved graduation rates are not the result of changing demographics in entering first year students.

These two high level comparisons of graduation rates demonstrate that our rates are lower than those of institutions we consider appropriate performance targets, that our rates are higher than predicted by national studies based on our student demographics, and that the improvement in recent years in our rates indicates a greater positive gap between actual and predicted rates. This led us to explore retention and graduation rates by student characteristics in more detail.

Retention and Graduation Rates by Student Characteristics

Retention rates in the first two years tend to be remarkably similar across sub-populations⁸. Overall retention rates of underrepresented students of color in the first two years are similar to the campus average, and gender gaps in early retention rates are fairly small. Similarly, neither of the two measures of academic preparation, HSGPA and SAT, obviously distinguish UC Santa Cruz students in terms of one- and two-year retention rates.

Retention rates across student sub-populations diverge after the third year through eventual graduation. Underrepresented students of color, and to a lesser extent men, are retained and graduate at lower rates, as are students who enter UC Santa Cruz in the lower quintiles of HSGPA and SAT scores. On a positive note, graduation rate gaps⁹ by race/ethnicity and by gender have

⁶ <http://planning.ucsc.edu/retention/>

⁷ <http://planning.ucsc.edu/retention/docs/PredictedVsActualGradRates1999-2002Cohorts.pdf>

⁸ Detailed year by year retention and graduation rates broken out by student characteristics are included in the tables posted at:

[http://planning.ucsc.edu/irps/Enrollmt/retain/2010_11/Frosh\(2010-11Tables\).pdf](http://planning.ucsc.edu/irps/Enrollmt/retain/2010_11/Frosh(2010-11Tables).pdf).

⁹ Gaps refer to differences in average retention and graduation rates between groups of students.

been narrowing, and they tend to be smaller at UC Santa Cruz than at most other UC campuses (Table 2).

TABLE 2
Six-Year Graduation Rate Gaps by UC Campus of the 2003 Freshmen Cohort*

	<u>UCSC</u>		<u>UCB</u>		<u>UCD</u>		<u>UCI</u>		<u>UCLA</u>		<u>UCR</u>		<u>UCSD</u>		<u>UCSB</u>	
	Rate	Gap	Rate	Gap	Rate	Gap	Rate	Gap	Rate	Gap	Rate	Gap	Rate	Gap	Rate	Gap
Overall	73		90		80		82		89		65		84		80	
Men	74	1	88	-2	76	-4	80	-2	87	-2	63	-2	84	0	79	-1
Women	73	0	92	2	83	3	84	2	90	1	67	2	85	1	81	1
White, non-Hispanic	74	1	89	-1	81	1	79	-3	90	1	60	-5	84	0	82	2
Black, non-Hispanic	69	-4	73	-17	70	-10	78	-4	81	-8	66	1	70	-14	75	-5
Hispanic	70	-3	84	-6	67	-13	71	-11	81	-8	60	-5	71	-13	74	-6
Asian/Pacific Islander	75	2	94	4	83	3	85	3	92	3	70	5	88	4	84	4
Amer. Ind./Alaska Native	72	-1	69	-21	81	1	73	-9	88	-1	27	-38	86	2	80	0
Race/Ethnicity Unknown	72	-1	88	-2	76	-4	84	2	88	-1	64	-1	86	2	79	-1
Nonresident Alien	63	-10	90	0	84	4	81	-1	86	-3	67	2	97	13	63	-17

*Source: IPEDS - <http://nces.ed.gov/ipeds/datacenter/>

Perhaps more impressively, all ethnic/race groups, but especially under-represented students of color, graduate at higher than predicted rates at UC Santa Cruz. African American and Latino/a students in particular, in recent years, have on average exceeded expected graduation rates by ten percent or more, indicating much smaller race/ethnicity gaps at UC Santa Cruz than is the national norm. Similarly, students who were in the bottom two quintiles of UCSC entry cohorts on High School GPA and SAT scores graduated by as much as ten percent above predicted rates. Students in the top quintiles of those two academic preparation indicators, despite graduating at higher absolute rates, graduated at about four percent below predicted rates.

Differential Patterns of Retention and Attrition by Year

Many institutions experience their biggest attrition between the first and second year. This is not surprising given that a certain amount of attrition is related to adjustment to college, fit with and commitment to a particular institution, academic preparation for college level work, and other factors. UC Santa Cruz's average first year attrition (Table 1) is higher than it is at particular selective comparison institutions, but only by one to two percentage points. In contrast, UC Santa Cruz's second to third year attrition tends to be nearly as large as the first to second year, representing a significant departure point. The loss of an additional six or seven percent after the third year, the point at which both students and the institution have made a considerable investment, is another area we need to better understand.

While there are many reasons that students leave UC Santa Cruz without earning a degree, either as a drop-out, stop-out, or to transfer, those reasons tend to be different at different points in students' careers. It is therefore useful to think about students who leave at different time points as representing different populations.

Periodically the individual UC Santa Cruz colleges have conducted exit surveys of students who withdraw in order to ascertain their reasons for leaving. These efforts, however, have been inconsistent across colleges and years, and tend to miss students who are either leaving later in their academic career or who simply fail to return after the summer as opposed to withdrawing mid-year. A more systematic collection of data about why students leave may provide valuable insights and is an option worth considering.

Even without direct exit survey or interview data however, we do have considerable data that we were able to analyze to more fully explain UC Santa Cruz's patterns of retention and attrition. This study examined the relationship between retention and/or graduation at each of four defined time points and sets of predictor, or input, variables including academic performance at UC Santa Cruz, academic preparation, and socio-demographic characteristics. Additionally, for the subset of students (about 40% of the overall undergraduate population) who responded to the UC Undergraduate Experiences Survey (UCUES) in spring 2010, we considered the influence of experiential factors addressed in the survey, such as satisfaction, sense of belonging, academic engagement and disengagement, self-assessed gains in academic and social competencies, and perceptions of campus climate.

DATA AND METHODS

Specific predictor variables were UCSC GPA, HSGPA, SAT scores, race/ethnicity, and gender. Additionally we considered nine dimensions of student experiences measured on UCUES, as well as a set of questions about students' financial concerns. The four outcomes that were analyzed were first to second year retention, second to third year retention, third to fourth year retention or graduation; and fourth year to graduation within six years from entry (Table 3).

Analysis of the first three outcomes was based on the five most recent cohorts for which data were available. Thus first to second year retention was based on the 2005 through 2009 entering cohorts; second to third year, the 2004 through 2008 cohorts; and third to fourth year, the 2003 through 2007 cohorts. The final outcome, fourth year retention to six year graduation, was based on only four cohorts, 2001 through 2004, since students first entering prior to 2001 were not required to have grades and thus do not have GPA data.

TABLE 3.
Predictor Variables

		Category	Input Variable	Scale	Comments		
Model 3	Model 2		Model 1	Academic performance at UC Santa Cruz	Cumulative GPA from entry to end of time interval ¹	Five bands: <2.0 2.0-2.49 2.5-2.99 3.0-3.49 >3.5	Categorized in bands because relationship between retention and GPA is nonlinear; also to differentiate broad levels of GPA rather than incremental differences
				Academic preparation	High school GPA SAT scores	By quintile group in entry cohort	Categorized in bands to differentiate levels of academic preparation rather than absolute scores
		Socio-demographic characteristics ²	Race/ethnicity Gender First generation college grad ³	By IPEDS category ⁴ Man/Woman Y/N	See footnote for categories		
		Student experiences at UC Santa Cruz	Nine UCES factors with 28 sub-factors ⁵	Six point Likert scales	Dimensions of student experiences derived through factor analysis of 2010 UC Undergraduate Experiences Survey (UCUES) data		
		Concern about future debt			Single UCES survey item		

¹ Cumulative GPA measured at four time points: end of first, second, and third years and final. For students not enrolled at the end of a particular time interval, the most recent available GPA for that time interval was used.

² No reliable data available on socio-economic status.

³ Neither parent graduated from a four year college.

⁴ Categories are: American Indian, African American/Black, Hispanic, Asian American, White, and International.

⁵ UCES factors, and associated sub-factors, are given in Appendix 1.

The relationship between the predictor variables and retention and/or graduation at each of the four measured time points was analyzed using logistic regression, which allowed us to estimate the probability that students would be retained based on their measured characteristics on the predictor variables. Our analysis involved testing multiple models, first considering the impact of each of the predictors one at a time, and then in combination, in order to find the most parsimonious combination that best explained the patterns observed in the data in the simplest form. The final models presented here estimate the relative impact of statistically significant predictors in the presence of other significant factors. If the predictor variable was found to have statistically insignificant effect on the outcome in the presence of other predictors or factors, it was excluded from the final models presented here.

At all four time points we estimated two models: UC Santa Cruz GPA only; and UC Santa Cruz GPA, Academic Preparation, and Demographics. Model 1 includes UC Santa Cruz GPA as the single predictor because understanding the relationship between whether students persist at UC Santa Cruz and their academic performance while they are here was of primary importance in the analysis. We determined Model 2 by considering HS GPA, SAT scores, race/ethnicity, gender, and first generation status, in addition to UC Santa Cruz GPA in various combinations, including allowing for interactions between the predictor variables, and constraining this to the most parsimonious model.

At each of the first three time points, retention to years two, three and four, we also estimated a third model, for which we considered all of the predictor variables tested in Model 2, as well as the dimensions of student experiences measured on UCUES (Appendix 1). Our method for estimating Model 3 was the same as for Model 2 except that we restricted it to the subset of students for whom we had survey data, resulting in a model based on a considerably smaller N. Because survey responders were more likely than non-responders to be retained to the following year, to have a UC Santa Cruz GPA in the higher ranges, and to be women, we weighted the data used to estimate Model 3 to proportionally represent the population in terms of retention status, UC Santa Cruz GPA, and gender. We could not estimate Model 3 for the final six-year graduation outcome because we had insufficient numbers of students from the 2001 through 2004 cohorts, the students on whom the last analysis was based, that were enrolled and took the survey in Spring 2010.

For each of the four time points we present descriptive statistics on retention rates by GPA ranges, followed by a summary of each of the three models (two for the last time point), and finally an integrative paragraph at the end of each section. Results of the logistic regression analyses are presented in tables. The odds ratios presented in the tables are an indication of the likelihood of students within each GPA range being retained relative to a reference group, which is

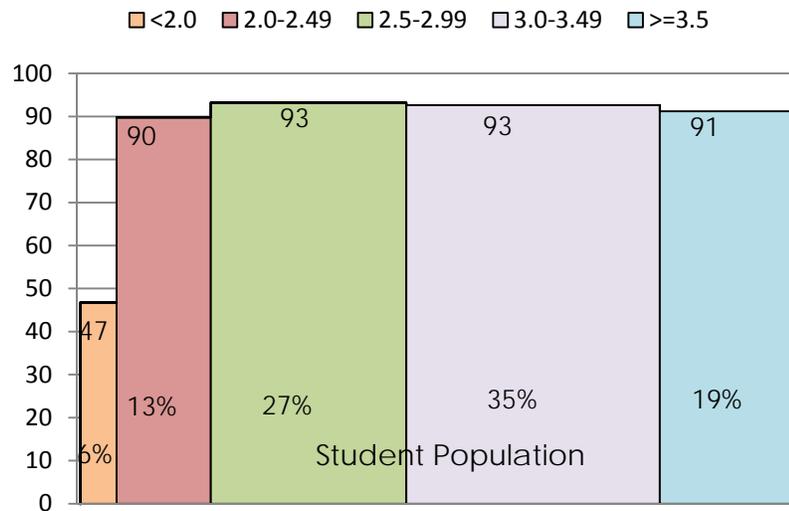
also indicated. For our analyses we used the GPA range containing the most students, those whose GPA was between 3.0-3.49, as the reference group. Groups for whom the average retention rates were significantly different than the average retention rates of the reference groups are marked with asterisks. Odds ratios below 1.0 indicate a smaller likelihood of being retained and above 1.0 a greater likelihood. The Nagelkerke statistic is an approximation of the proportion of the variance explained by each model.

RESULTS

First to Second Year Retention and Attrition

The plurality of first year students (34%-36%) in the 2005 through 2009 cohorts earned a first year GPA between 3.0 and 3.49 (Figure 1). More than a quarter (26%-27%) earned a GPA between 2.5 and 2.99, while roughly a fifth (18%-21%), had a first year GPA of 3.5 and above. Far fewer students (11%-15%) had a GPA in the 2.0-2.49 range, and a very small minority (2%-4%) had a GPA less than 2.0 by the end of the first year.

FIGURE 1
Year 1 - Year 2 Retention Rate (%) by First Year GPA



Across all UC Santa Cruz GPA ranges except for the lowest (<2.0), retention rates to the second year were similar (88 – 94% range across cohorts; 90 – 93% for 2005-09 cohorts mean). Not surprisingly, students whose first year GPA was below 2.0, of whom there were only 100 or so per year, had the lowest retention rates, averaging 47% across the five cohort years. Failure to achieve a first year GPA of at least 2.0 poses a substantial risk of attrition before the second year. Overall

GPA's relationship with retention to the second year for students who are able to achieve at least a 2.0 first year GPA is apparently minor.

TABLE 4

Year 1 - Year 2 Retention Rates by First Year GPA Range							
Cohort	Count	UCSC GPA					Overall
		<2.00	2.00-2.49	2.50-2.99	3.00-3.49	>=3.50	
2005	2,977	54%	90%	92%	94%	90%	89%
2006	3,337	48%	89%	94%	93%	94%	90%
2007	3,704	45%	91%	93%	92%	89%	88%
2008	3,960	40%	91%	93%	92%	91%	89%
2009	3,214	46%	88%	94%	93%	92%	89%
2005-09	17,192	47%	90%	93%	93%	91%	89%

Model 1. UC Santa Cruz GPA

Earning a first year GPA of less than 2.0 was a significant predictor of attrition (Table 5) when this was the only influence considered. Earning a GPA in either the second to lowest range (2.0-2.49) or the highest range (≥ 3.5) was also associated with being less likely to be retained than the modal group of students whose GPA was between 3.0 and 3.49. The small differences in retention rates of students earning a 2.5 to 2.99 were not significantly different. Thus although differences in retention rates of all but the lowest performing students were small, when considered alone, first year GPA was statistically associated with retention to year two, with academic performance within the 2.5-2.99 and 3.0 to 3.49 ranges associated with higher rates of retention to year two.

Model 2. UCSC GPA, Academic Preparation, and Demographics

When we considered explanatory variables in addition to UCSC GPA, the fundamental relationship between having a low first year GPA and a lower likelihood of being retained was consistent. Irrespective of academic preparation or demographic characteristics, retention rates of students in the bottom two GPA ranges were significantly lower than those of students in the modal GPA range of 3.0 to 3.49. The slightly lower retention of rates of students in the top GPA range was not significantly different however, indicating that the small difference could be accounted for by other factors included in the model. More strikingly, both gender and race/ethnicity were related to retention to the second year when we simultaneously considered the influence of first year GPA. In and of itself gender was related to first to second year retention. Men's rates were higher than women's and the difference was statistically significant. The overall differences in first to second year retention rates by race/ethnicity tend to be very small and inconsistent. In fact, considered alone, race/ethnicity was not a significant predictor of first to second year retention. Within each of the

five GPA ranges we considered however, Hispanic, African-American, and Asian-American students were more likely to be retained to year two than were White students. That is, on average, students of color (with the exception of American Indian students whose numbers were small), were more likely to persist to the second year when compared to White students who had a first year GPA in the same range.

TABLE 5
Regression Models Predicting Retention from Year 1 to Year 2

		Model 1	Model 2	Model 3	
1st year GPA	<2.0	0.07***	0.06***	0.06***	
	2.0-2.49	0.70***	0.64***	0.42*	
	2.5-2.99	1.09	1.05	1.13	
	3.0-3.49 (ref)	-	-	-	
	>=3.5	0.83*	0.86	0.88	
Socio-demographic Characteristics					
Gender	Male		1.31***		
	Female (ref)		-		
Race/ethnicity	American Indian		0.94	reference group	
	Hispanic		1.37***		
	African American		1.54*		
	Asian American		1.45***		
	International		0.74		
	White (ref)		-		0.57*
	First generation				5.77**
Not first generation			-		
UCUES factors	Satisfaction/Belonging			2.27**	
	Financial concern			0.81*	
Interaction	1st generation*Satisfaction/Belonging			0.63***	
R2 (Nagelkerke)		0.145	0.154	0.300	
N of respondents		17083	15882	833	

* $p < .05$; ** $p < .01$; *** $p < .001$

Considered alone, being in the lowest quintile of either HS GPA or SAT scores was associated with lower retention to the second year. However neither indicator contributed any unique ability to explain attrition between years one and two (and are therefore not listed in Table 5) beyond the impact of low academic performance while at UCSC.

Model 3. UCSC GPA, Academic Preparation, Demographics, UCUES

After weighting the subset of first year students who responded to UCUES in Spring 2010 to reflect the overall population of first year students, Model 3 is considerably more powerful than Model 2 (institutional variables only) at accounting for student retention (estimated $R^2 = 0.300$ compared to 0.154) although N is much smaller. Being in the very bottom GPA range (<2.0) was significantly associated with lower retention, while being a student of color was associated with higher levels of retention (Table 5). The effects of gender, and even the impact of being in the second to lowest GPA range observed in Model 2. were not apparent in Model 3.

It is not surprising that Overall Satisfaction/Belongingness (e.g., Knowing what I know I would still chose to enroll here; I feel I belong, satisfaction with the overall academic experience, the social experience, and the value of the education for the price) was related to retention to the second year. This relationship was not consistent across students however. Analysis of the interaction between satisfaction and belongingness with first generation status indicated a much weaker relationship between satisfaction and retention for first generation college students than for non-first generation students. Whether first generation college students persist to the second year was far less a function of how satisfied they were with their experience and whether they felt they belonged than it was for other students. Furthermore when their satisfaction levels were taken into account they were more likely to persist to a second year.

Financial concern about future debt was associated with lower levels of retention. That relationship was consistent across other subjective experiences, as well as across academic performance, preparation, and demographics.

Integration: Year 1 – Year 2 Retention

The findings from these analyses suggest that the decision to leave UC Santa Cruz after the first year is largely about failure to succeed in course work, feeling a lack of satisfaction or sense of belonging with UCSC, and/or concerns about debt. For students whose first year academic performance is poor, students of color are more likely to persist to the second year than White students. Similarly, first generation college students are less likely to be deterred from returning for a second year by low levels of satisfaction and sense of belongingness than non-first generation college students. When we controlled for satisfaction/belongingness, first generation college students were more likely to persist.

Second to Third Year Retention and Attrition

Between years two and three is a natural time to lose students who transfer to another institution. In recent years about seven to eight percent of freshmen entry cohorts graduated within six years from a four year institution other than UC Santa Cruz. More than half of those graduated from another UC (Table 6). Of course some students who transfer and ultimately graduate from other institutions may have transferred at a different point in their career, and some students who leave between the second and third years may do so for other reasons including academic failure.

TABLE 6

Six-Year Graduation Rates of UCSC Frosh Cohorts by Graduating UC Campus

Graduated from:	1999 cohort		2000 cohort		2001 cohort		2002 cohort		2003 cohort	
	N=		N=		N=		N=		N=	
	n	%	n	%	n	%	n	%	n	%
Santa Cruz	1,649	70.2%	2,006	69.9%	2,011	68.4%	2,250	71.0%	2,444	72.9%
Berkeley	11	0.5%	21	0.7%	25	0.9%	17	0.5%	17	0.5%
Davis	19	0.8%	34	1.2%	30	1.0%	21	0.7%	18	0.5%
Los Angeles	15	0.6%	25	0.9%	27	0.9%	27	0.9%	15	0.4%
Riverside	1	0.0%	6	0.2%	10	0.3%	8	0.3%	4	0.1%
San Diego	23	1.0%	17	0.6%	16	0.5%	25	0.8%	14	0.4%
Santa Barbara	15	0.6%	15	0.5%	23	0.8%	26	0.8%	13	0.4%
Irvine	8	0.3%	14	0.5%	8	0.3%	15	0.5%	8	0.2%
missing	0	0.0%	0	0.0%	1	0.0%	0	0.0%	0	0.0%
Other UC	92	3.9%	132	4.6%	140	4.8%	139	4.4%	89	2.7%
Any UC	1,741	74.1%	2,138	74.5%	2,151	73.2%	2,389	75.4%	2,533	75.5%

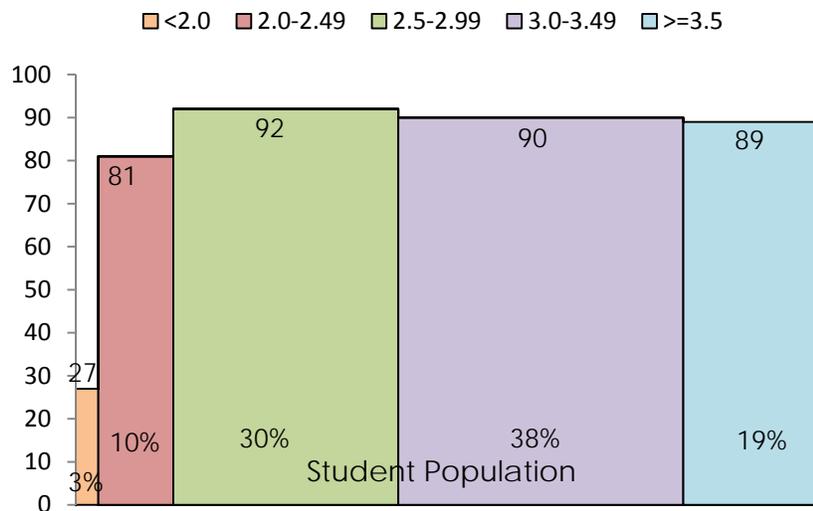
Between 89 and 93 percent of those who earned a second year GPA of 3.0 to 3.49 were retained to year three depending on the cohort (Table 7). Retention rates were similar for students in the 2.5 - 2.99 and 3.0 – 3.49 ranges. Averaged across cohorts the differences between students in the top three GPA ranges were three percent or less (Figure 2). In comparison, retention rates from the second to third year of students who earned a GPA of 2.0 – 2.49 was between 78 and 85 percent. For those with a GPA below 2.0 the retention rates were between 20 and 35 percent.

Model 1. UCSC GPA

The base analysis of retention to the third year was based on students who were retained to at least the fall term of year two, and considered only the influence of academic performance as measured by second year UCSC GPA. Second year GPA was related to the likelihood that students would continue at UCSC (Table 7). As was the case for first-to-second year retention, having a GPA in one of the two lowest ranges was significantly associated with higher levels of attrition relative to the largest group of students, those earning 3.0 to 3.49. Earning a GPA in the 2.5-2.99 was related to higher retention.

TABLE 7**Year 2 - Year 3 Retention Rates by Second Year GPA Range**

Cohort	Count	UCSC GPA					Overall
		<2.00	2.00-2.49	2.50-2.99	3.00-3.49	>=3.50	
2004	2,691	26%	85%	90%	89%	90%	87%
2005	2,691	26%	84%	93%	89%	90%	87%
2006	3,034	35%	79%	91%	89%	90%	87%
2007	3,300	20%	78%	92%	90%	87%	87%
2008	3,569	29%	82%	93%	93%	90%	90%
2004-08	15,285	27%	81%	92%	90%	89%	88%

FIGURE 2**Year 2 - Year 3 Retention Rate (%) by Second Year GPA****Model 2. UCSC GPA, Academic Preparation, Demographics**

As indicated by the significant interactions between second year GPA and race/ethnicity in Model 2, the impact of academic performance and retention to the third year depended on students' race/ethnicity (Table 8). Overall, poor academic performance (GPAs in the <2.0 and 2.0-2.49 ranges) significantly reduced the likelihood of persistence to the third year. However, Hispanic, African American, and Asian American students with marginal GPAs between 2.0 and 2.49 were more likely to persist than White students with the same GPAs. At the same time, among students with the highest GPAs (3.5 and above), Hispanic and Asian-American students were less likely to be retained.

TABLE 8

Regression Models Predicting Retention from Year 2 to Year 3

		Model 1	Model 2	Model 3
2nd year GPA	<2.0	0.04***	0.03***	0.06***
	2.0-2.49	0.48***	0.35***	0.57
	2.5-2.99	1.24**	1.10	0.95
	3.0-3.49 (ref)	-	-	-
	>=3.5	0.93	1.02	0.58
Academic Preparation				
HS GPA (quintiles)	1st (lowest)		0.72***	0.28*
	2nd		0.75**	0.70
	3rd		0.83*	0.55
	4th		0.74**	0.35*
	5th (ref)		-	-
Race/Ethnicity				
	American Indian		1.64	
	Hispanic		1.34**	0.20**
	African American		1.16	
	Asian American		1.01	1.17
	International		0.54	0.07
	White (ref)		-	-
Interaction terms				
	(GPA 2.0-2.49)*Hispanic		1.61*	
	(GPA 2.0-2.49)*African American		3.96*	
	(GPA 2.0-2.49)*Asian American		1.90***	
	(GPA 2.5-2.99)*Asian American		1.94***	
	(GPA >=3.5)*Hispanic		0.56**	
	(GPA >=3.5)*Asian American		0.51*	0.23*
	HSGPA 1st quint*Hispanic			11.53**
	HSGPA 4th quint*Hispanic			6.11*
UCUES factors				
	Belonging			1.32***
	Career Orientation			0.74***
R2 (Nagelkerke)		0.12	0.135	0.22
N of respondents		15,283	13,572	973

* $p < .05$; ** $p < .01$; *** $p < .001$

Interestingly, although HS GPA did not contribute independently to retention from the first to second year, it was related to retention from the second to third year. Having a high school GPA in the highest quintile of a given freshmen entry cohort was significantly associated with higher retention to year three. This relationship was independent of the relationship between academic performance or the interaction between academic performance and race/

ethnicity and retention. Having been a high achiever in high school was predictive of being highly persistent between the second and third years.

Model 3. UCSC GPA, Academic Preparation, Demographics, and UCUES

Again, including subjective experiences in the analysis resulted in a more powerful model that was able to better account for patterns of attrition than models that included only non-experiential variables. As with first to second year retention, a higher sense of Overall Satisfaction/Belongingness was also associated with higher retention from the second to third year.

Another factor affecting students' decisions to stay at UC Santa Cruz was Career Motivation (e.g., choosing a major because it is prestigious or leads to a high paying job or a more fulfilling career). Students with higher levels of Career Motivation were less likely to continue at UC Santa Cruz into their third year regardless of their performance here, their preparation, demographic characteristics or other subjective experiences at UC Santa Cruz.

Taking Overall Satisfaction/Belongingness and Career Motivation into account did not change the basic negative impact of very low second year UC Santa Cruz GPA or of HSGPA. A UC Santa Cruz GPA of less than 2.0 or a HS GPA in the bottom quintile was associated with a greater chance of attrition. At the same time, academic preparation was less important to retention than Overall Satisfaction/ Belonging and Career Motivation, except for Hispanic students in the lowest or second highest HSGPA quintile, who were more likely to stay at UC Santa Cruz than their non-Hispanic classmates with the same levels of HSGPA.

Integration: Year 2 – Year 3 Retention

As of the end of the second year, there was still a small group of students who were failing to meet minimum GPA requirements for graduation, and they were highly unlikely to be retained. By the end of the second year, barely meeting the minimum GPA requirement with a 2.0-2.49 GPA was also associated with significantly lower retention rates, although that tendency was less pronounced among Hispanic, African American, and Asian American students. Even more predictive of attrition between years two and three than any other factor except having a GPA below 2.0 were being less satisfied with UC Santa Cruz or feeling a lower sense of belonging, or having high career oriented motivations.

Taken together, the results of these analyses suggest that there are at least three patterns of attrition between the second and third years: those who are not doing well academically; those who are dissatisfied or feel that they don't belong at UCSC; and those who are more career oriented. It is likely that the minority of students who do transfer to another institution between the second and third year are predominantly students who are doing well, and who either are dissatisfied with their experiences at UCSC or are very career oriented.

Third to Fourth Year Retention and Attrition

Once students have been retained to the third year, the chances that they will be retained and eventually graduate improve considerably. Approximately 85 percent earn a third year GPA of at least 2.5, and between 94 and 98 percent of those students were retained to the fourth year (Table 9). The 10 percent of students whose third year GPA was 2.0-2.49 were retained at 84 percent on average, while the 5 to 6 percent of students (fewer than 100 per year) with a GPA below 2.0 had retention rates ranging from 38 to 59 percent (Figure 3).

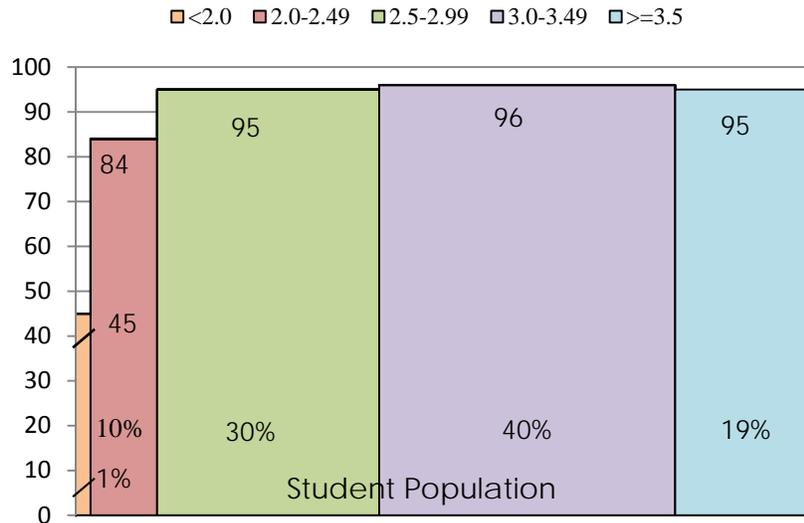
TABLE 9

Year 3 - Year 4 Retention Rates by Third Year GPA Range

Cohort	Count	UCSC GPA					Overall
		<2.00	2.00-2.49	2.50-2.99	3.00-3.49	>=3.50	
2003	2,702	47%	83%	95%	96%	94%	93%
2004	2,385	43%	83%	94%	94%	98%	93%
2005	2,347	40%	85%	96%	97%	94%	94%
2006	2,684	59%	86%	95%	95%	95%	94%
2007	2,862	38%	83%	95%	96%	95%	93%
2003-04	12,980	45%	84%	95%	96%	95%	94%

FIGURE 3

Year 3 - Year 4 Retention Rate (%) by Third Year GPA



Model 1. UCSC GPA

Consistent with retention patterns between years one and two and years two and three, a third year GPA in the two bottom ranges was predictive of higher levels of attrition. There were no significant differences in retention rates between students in the other three GPA ranges. Based on GPA alone then, it is only students struggling academically (cumulative GPA below 2.5) who are more likely to leave UCSC after the third year.

Model 2. UCSC GPA, Academic Preparation, and Demographics

Again the impact of UCSC GPA interacted with race/ethnicity. While generally Asian-American students were more likely to be retained from year three to year four than White students, Asian-American students whose GPA was a 3.5 or above were less likely to be retained than White students with comparable GPA.

The only other variable that was consistently related to retention from the third to fourth year when all other variables were taken into account was SAT scores. Regardless of how well they were doing in terms of grades at UC Santa Cruz, students whose SAT scores were in the top quintile of their entering class were significantly less likely to be retained to (or graduate before) their fourth year. On the surface, it is counterintuitive that, independent of other considerations, the top SAT scorers were less likely to persist to the fourth year. Factors measured on UCUES shed some light on this phenomenon.

Model 3. UCSC GPA, Academic Preparation, Demographics, and UCUES

As was the case at each of the previous two time points we analyzed, including subjective experiences and attitudes in the analysis resulted in a considerably better model in terms of predicting retention. Self-reported gains across a broad range of skills (measured by the UCUES factor named “Gains in Non-quantitative Skills”) since entering UC Santa Cruz, including critical thinking and communication, cultural appreciation and social awareness, and computer and research skills were associated with a greater likelihood of persisting at UC Santa Cruz even when taking account students’ performance, preparation, and socio-demographic characteristics.

The set of items on UCUES related to Analytic Rigor of Coursework was also significantly related to retention from year three to year four. Reporting higher levels of rigor in coursework was associated with higher retention. The interaction between Analytic Rigor of Coursework and being Hispanic indicated that the positive effect on retention of taking more rigorous courses (or at least perceiving them to be more rigorous) was particularly strong for Hispanic students.

We also found a similar interaction between self-reported current proficiency and gains in Quantitative Skills (UCUES factor named “Quantitative skills”) and

being Asian American. Asian American students were more likely to be retained the higher they were in self-reported proficiency and gains in quantitative skills.

TABLE 10

Regression Models Predicting Retention from Year 3 to Year 4

		Model 1	Model 2	Model 3
3rd year GPA	<2.0	0.04***	0.03***	low n
	2.0-2.49	0.24***	0.22***	0.17**
	2.5-2.99	0.88	0.77*	0.50
	3.0-3.49 (ref)	-	-	-
	>=3.5	0.88	1.07	0.29*
Academic Preparation				
SAT (quintiles)	1st (lowest)		1.92***	
	2nd		1.69***	
	3rd		1.64***	
	4th		1.30*	
	5th (ref)		-	
Race/Ethnicity				
	American Indian		1.25	-
	Hispanic		1.07	0.05*
	African American		1.15	-
	Asian American		1.81**	0.08*
	International		1.25	
	White (ref)		-	-
Interaction terms	(GPA >=3.5)*Asian American		0.49*	
UCUES factors	Gains in Non-quant. skills			1.35*
	Analytic Rigor of Coursework			1.34*
	Quantitative Skills			0.98
Interaction terms	Quantitative skills*Asian American			2.38*
	Analytic Coursework Rigor*Hispanic			3.70*
	R2 (Nagelkerke)	0.098	0.113	0.415
	N of respondents	12961	11696	597

* $p < .05$; ** $p < .01$; *** $p < .001$

We hypothesized that the negative impact of being among the highest quintile on SAT scores on third to fourth year retention that we observed in Model 2 might have been the result of students entering with the highest preparation levels perceiving fewer gains. Indeed we found a negative correlation between SAT scores and perceived gains in non-quantitative skills, and in quantitative skills.

It may not be surprising that students who start with the highest levels of preparation feel they make the least gains while they are here. However, this phenomenon appears to have significant consequences for retention. These findings speak to the benefits for retention of a demanding curriculum, especially among our most highly prepared students.

Integration: Year 3 – Year 4 Retention

When we considered socio-demographic characteristics and indicators of academic preparation simultaneously with academic performance at UC Santa Cruz, we confirmed the relationship between a GPA below 2.5 and a greater likelihood of attrition. While there are other factors that influence whether students leave, having a low GPA is consistently one of the main correlates of leaving UCSC, and this is true regardless of students' race/ethnicity, gender, first generation status, and academic preparation.

Between years three and four higher retention was not associated with overall satisfaction and sense of belonging, unlike earlier retention points. Persisting at UC Santa Cruz after the third year appears to be less related to students' fit with the campus and more about perceived academic gains and an analytically challenging curriculum.

Fourth Year to Graduation within Six Years

Overall, 92 percent of students who were retained to (or graduated before) the start of their fourth year ultimately graduated within six years of first enrolling as freshmen. This means that for the five most recent cohorts for which at least six years has elapsed since they first enrolled, nearly 200 students per cohort who were retained at UCSC up until their fourth year did not manage to earn a degree within six years.

The differences in graduation rates by final cumulative GPA are more obvious and more straightforward than are the retention rates by GPA at earlier time points. The higher the final GPA range, the higher the graduation rate. Among those retained to year four, ninety-nine percent of the top range (≥ 3.5), 96 percent of the 3.0-3.49 range, and 89 percent of the 2.5-2.99 range, compared with 57 percent of the 2.0-2.49 range, and 2.4% of the handful whose GPA was below 2.0 graduated within six years (Table 11; Figure 4).

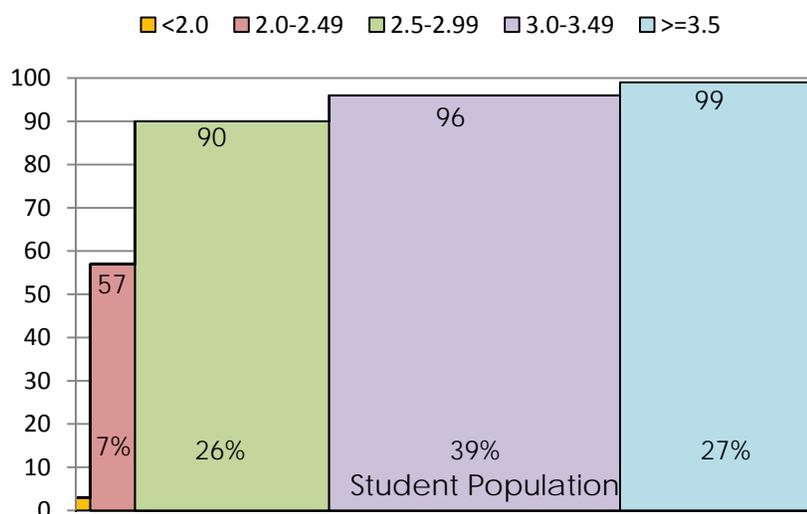
TABLE 11

Year 4 to Graduation within 6 Years by Final GPA

Cohort	Count	UCSC GPA					Overall
		<2.00	2.00-2.49	2.50-2.99	3.00-3.49	>=3.50	
2000	2,177	0%	60%	79%	88%	98%	92%
2001	2,217	0%	49%	87%	96%	99%	91%
2002	2,446	6%	58%	91%	95%	99%	92%
2003	2,656	6%	60%	91%	96%	99%	92%
2004	2,342	0%	59%	91%	97%	99%	93%
2000-04	11,838	2%	57%	89%	96%	99%	92%

FIGURE 4

Year 3 - Year 4 Retention Rate (%) by Final GPA



Model 1. UCSC GPA

As was the case at each of the other time points that we analyzed, the plurality of students (nearly 40 percent) earned a cumulative GPA in the 3.0-3.49 range. Compared with them, students who were earning a GPA in the top range of 3.5 and above were significantly more likely to graduate (Table 12). Earning a final GPA in any of the three ranges below 3.0 was associated with a lower chance of earning a degree within six years.

Model 2. UCSC GPA, Academic Preparation, Demographics

Adding academic preparation and socio-demographic characteristics to the model did not change the relationship between final GPA and graduation (Table 12). That is, across all of the other student attributes that we measured, the relationship between higher GPA and higher ultimate graduation was consistent, with the exception of Hispanic students whose GPA was in the highest range (≥ 3.5). As indicated by the significant interaction, the positive influence of the being in the highest GPA range was less pronounced for Hispanic students than for White students.

TABLE 12
Regression Models Predicting 6 Year Graduation from Year 4

		Model 1	Model 2
Final GPA	<2.0	0.00***	0.00***
	2.0-2.49	0.06***	0.05***
	2.5-2.99	0.38***	0.34***
	3.0-3.49 (ref)	-	-
	≥ 3.5	4.39***	6.29***
Academic Preparation			
SAT (quintiles)	1st (lowest)		2.87***
	2nd		2.15***
	3rd		1.71***
	4th		1.38*
	5th (ref)		-
Socio-demographic Characteristics			
Race/Ethnicity	American Indian		0.6
	Hispanic		0.81
	African American		0.87
	Asian American		1.67***
	International		1.6
	White (ref)		-
	First Generation		0.63***
	Unknown if 1st gen		0.71**
Not first generation (ref)		-	
Interaction terms	(GPA ≥ 3.5)*Hispanic		0.29**
	R2 (Nagelkerke)	0.293	0.314
	N of respondents	9603	8468

* $p < .05$; ** $p < .01$; *** $p < .001$

Independent of the effect of academic performance, students who entered UCSC with SAT scores in the highest quintile of their cohort were significantly less likely to graduate within six years than other students who were retained to the fourth year after taking into account their academic performance at UCSC. This is similar to the pattern we found in retention between years three and four and may represent a similar phenomenon. However, because we did not have sufficient 2010 survey data for this population, we were unable to verify whether it was related to lower perceived gains across a variety of skills.

There were also socio-demographic characteristics that contributed independently to the likelihood of eventual graduation. Specifically, taking into account academic performance and preparation, Asian-American students who were retained to year four were more likely to ultimately graduate within six years than White students were. In contrast, first generation college students were less likely to graduate than their non-first generation peers who were retained to four years.

Integration: Year 4 – Six-Year Graduation

Although they represent a small proportion of entry cohorts, it is problematic that there are even this many students who persist at UCSC until their fourth year and still fail to graduate within six years. These are students who are unable to overcome a final barrier or obstacle. The lower the students' GPA, the less likely they are to "cross the finish line." It is also the case that after taking into account the impact of UC Santa Cruz GPA, being a first generation college student or having an SAT score in the highest quintile poses a statistical risk to clearing the final hurdle.

CONCLUSIONS

Patterns of retention and attrition vary across students' academic careers. Different influences and motivations come into play for students deciding not to return to UC Santa Cruz after one year or after three or four years. Those motivations are different for students depending on their circumstances, including how well they are doing academically, their socio-demographic characteristics, and their experiences at UC Santa Cruz. Nevertheless there are consistent themes that emerged in our data across student careers.

Low academic performance

Low academic performance consistently poses a significant attrition risk. Students whose cumulative GPA is below 2.5 are more likely to leave UC Santa Cruz across their academic careers. Poor academic performance could be related to a number of factors, from inadequate preparation, to financial problems, to not finding a good fitting and appropriate major, to personal, family, mental health or substance abuse issues.

Any retention initiatives undertaken on campus should have as one of its main objectives to reduce the number of students who are in academic difficulty and to increase overall performance of students near the bottom. An important strategy could be early identification and triage of students in academic difficulty very early in their careers. Developing a consistent methodology for determining which students are doing poorly academically, indicated by either inadequate units or poor grades during their first year, could at least provide an opportunity for intervention before academic failure accumulates. It may be that students need to be directed for remediation, or it may be that some students need more personal services.

High academic achievement

In recent years there has been considerable concern on campus that a disproportionate number of the “best students”—those who were high achievers in high school (as indicated by high school GPA and/or SAT scores) or at UC Santa Cruz (as indicated by cumulative GPA at UC Santa Cruz)—leave UC Santa Cruz without graduating. Although there is a very small increased likelihood of students with the highest GPAs leaving UC Santa Cruz after the first year, it is small both in terms of percentages and overall numbers, and the difference is not statistically significant when other factors are taken into account. Furthermore that pattern does not consistently persist past the second year. In fact by the fourth year having a higher GPA is associated with a considerably greater likelihood of graduating.

Because making greater gains on a variety of skills and taking analytically rigorous coursework is indicative of a greater likelihood to persist, creating more opportunities for students to be challenged, including honors programs or opportunities to be involved more directly with faculty members’ scholarly activities may benefit our retention rates, especially among our highest achieving and most highly prepared students.

Race/Ethnicity

Comparisons of early retention rates by race/ethnicity at UC Santa Cruz are encouraging. Rates are fairly equal across race/ethnicity categories, and underrepresented students in some cases are more likely to be retained than other students. Moreover, our analyses suggest that when other factors that influence retention are taken into account, and when there are significant average differences between students based on race/ethnicity, students of color are usually more likely to be retained than White students. That includes being less deterred by earning a lower GPA and being even more likely than White students to benefit from perceiving academic gains.

This suggests that climate is not interfering with retention. As the proportion of students of color on campus increases, retention rates of students of color may increase as well. That was the case for Asian-American students, whose retention rates improved as the proportion of Asian-American students on campus increased¹⁰. This is a reason to be optimistic about future retention rates of underrepresented students.

In terms of ultimate graduation rates, there are gaps by race/ethnicity. They are smaller than on many other campuses, and they are better than statistical modeling would lead us to expect. Nevertheless they need to be addressed if we are to improve our overall graduation rates. Because being a student of color was not in and of itself related to lower retention or graduation, the lower overall graduation rates of some underrepresented students of color suggest that other factors, probably academic performance, are contributing.

First Generation

Being a first generation college student also places students at risk for not “making it across the finish line.” The association between being first generation and being more likely to be retained in the lower division means that these are students we could and should be graduating at least campus average rates. It could be that some of the issues related to finishing at the end are related to issues of cultural capital, financial issues, or others.

Overall Satisfaction/Belongingness

Lower overall satisfaction and sense of belonging is a consistent and important contributor to students leaving after the first or second year. Developing a mechanism for early identification of students who are dissatisfied may be possible, but would likely to be difficult. It is of course the case that there will always be some students who are not a good fit with the institution.

Academic Preparation

SAT scores, which may be more a measure of aptitude than achievement, are, at the highest level, related to attrition risk. When we looked at other factors, this seems like it is related to perceiving fewer gains across a broad spectrum of domains than other students.

IMPLICATIONS AND NEXT STEPS

Improving first year retention by two percent and reducing attrition after the second year to less than 10 percent would result in a six-year graduation rate of at least 82 percent, an improvement of eight percentage points. That would be equal to UC Irvine’s current rate, and two percent above the current UC

¹⁰ [http://planning.ucsc.edu/irps/Enrollmt/retain/2010_11/Frosh\(2010-11Tables\).pdf](http://planning.ucsc.edu/irps/Enrollmt/retain/2010_11/Frosh(2010-11Tables).pdf)

average (Table 1). Such a large increase will require a comprehensive strategy aimed at improving retention in key areas where we have identified vulnerabilities or where we have reason to believe we can make progress. Based on the statistical studies here, these include:

- (1) Identifying and intervening early in academic careers for low academic performance,
- (2) Creating opportunities for challenges for the most highly prepared and highest performing students, and
- (3) Finding ways to ensure that students who are retained to the upper division are able to “make it across the finish line.”

APPENDIX 1

Factor Structure of UCUES 2010

Factor 1. Satisfaction with Educational Experience

1a. Quality of Instruction and Courses in the Major

How satisfied are you with...

- quality of faculty instruction
- quality of teaching by TAs
- quality of lower-division courses in your major
- quality of upper-division courses in your major

1b. Satisfaction with Access and Availability of Courses in the Major

How satisfied are you with...

- availability of general education course
- availability of courses needed for graduation
- access to small classes
- access to faculty outside of class
- ability to get into major of choice
- opportunities for research, creative products
- variety of courses available in major

1c. Overall Satisfaction/Belongingness

How satisfied are you with...

- UC GPA
- overall social experience
- overall academic experience
- value of your education for the price you're paying

Do you agree or disagree with these statements?

- I feel that I belong at this campus
- Knowing what I know now, I would still choose to enroll at this campus

1d. Satisfaction with Advising and Out of Class Contact

How satisfied are you with...

- advising by peer advisors on academics
- advising by college staff on academics
- advising by departmental staff on academic matters
- advising by faculty on academic matters
- open channels of communication with faculty?
- students treated equitably and fairly by faculty?
- faculty provide prompt and useful feedback on student work

1e. Clarity of Program Requirements, Policies & Practices

Please answer the following about your major:

- results in coherent understanding of field?
- well-defined program of study?
- department rules clear?
- catalogue description accurate?

1f. Satisfaction with Enrichment Programs and Library Support

- How satisfied are you with...
- educational enrichment programs
- accessibility of library staff
- availability of library research materials

Factor 2. Current Skills Self-Assessment (Non-quantitative)

2a. Critical Thinking and Communication

- Rate your...
- Analytical and critical thinking skills
- Ability to write clearly and effectively
- Read and comprehend academic material
- Understanding of a specific field of study
- Ability to speak clearly and effectively in English
- Understanding international perspectives

2b. Cultural Appreciation and Social Awareness

- Rate your...
- Interpersonal (social) skills
- Ability to appreciate, tolerate and understand racial and ethnic diversity
- Ability to appreciate the fine arts
- Ability to appreciate cultural and global diversity
- Understanding of personal social responsibility
- Self awareness and understanding
- Ability to prepare and make a presentation

2c. Computer and Research Skills

- Rate your...
- Computer skills
- Internet skills
- Library research skills
- Other research skills

Factor 3. Engagement with Studies

3a. Academic Involvement and Initiative

- How frequently in this academic year has the student...
- communicated with a faculty member by email or in person
- talked with the instructor outside of class about course material
- interacted with faculty during lecture class sessions
- contributed to a class discussion
- brought up ideas or concepts from different courses during class discussions
- asked an insightful question in class
- found a course so interesting that you did more work than was required
- chosen challenging courses, when possible, even though you might lower your GPA
- made a class presentation
- had a class in which the professor knew or learned your name
- Number of faculty recommenders

3b. Research or Creative Projects Experience

How frequently in this academic year has the student...

taken a small research-oriented seminar with faculty

worked with a faculty member on an activity other than coursework

Student has done / is taking ...

research course

research activity as independent study

assist faculty in research for course credit

assist faculty in research for pay

assist faculty in research as a volunteer

work on creative projects with faculty for course credit

work on creative projects with faculty for pay

work on creative projects with faculty as a volunteer

3c. Collaborative work

How frequently in this academic year has the student...

sought academic help from instructor or tutor

worked with group of students outside of class

helped classmate understand material better

Factor 4. Gains in Non-quantitative Skills

4a. Gains in Critical Thinking and Communication

Change in student's...

Analytical and critical thinking skills

Ability to write clearly and effectively

Read and comprehend academic material

Understanding of a specific field of study

Ability to speak clearly and effectively in English

Understanding international perspectives

4b. Gains in Cultural Appreciation and Social Awareness

Change in student's...

Interpersonal (social) skills

Ability to appreciate, tolerate and understand racial and ethnic diversity

Ability to appreciate the fine arts

Ability to appreciate cultural and global diversity

Understanding of personal social responsibility

Self awareness and understanding

4c. Gains in Computer and Research Skills

Change in student's...

Computer skills

Internet skills

Library research skills

Other research skills

Ability to prepare and make a presentation

Factor 5. Development of Scholarship

5a. Critical Reasoning and Assessment of Reasoning

How often student was required to ..
generate new ideas or products
use facts, examples to support viewpoint
incorporate ideas from different courses
examine and assess other methods and conclusions
reconsider own position after assessing other arguments

5b. Analytic Rigor of Coursework

How often student was required to ..
recall facts, terms, concepts (reverse scored)
explain and solve problems
analyze

5c. Elevated Academic Effort

How often student has...
raised standard for acceptable effort due to high standards of a faculty member
extensively revised a paper at least once before submitting to be graded

Factor 6. Campus Climate for Diversity

6a. Climate for Personal Characteristics

Degree of agreement with...
Students are respected here regardless of their economic or social class
Students are respected here regardless of their gender
Students are respected here regardless of their race or ethnicity
Students are respected here regardless of their sexual orientation

6b. Freedom to Express Beliefs

Degree of agreement with...
I feel free to express my political beliefs on campus
I feel free to express my religious beliefs on campus

6c. Climate of Respect for Personal Beliefs

Degree of agreement with...
Students are respected here regardless of their religious beliefs
Students are respected here regardless of their political beliefs

Factor 7. Academic Disengagement

7a. Extracurricular Engagement

How many hours per week student spends...
attend movies, concerts, sports or other events
participate in physical exercise, recreational sports, or physically active hobbies
participate in student clubs or organizations
pursuing a recreational/creative interest
socializing with friends
partying
using computer for non-academic purposes
watching TV

7b. Poor Academic Habits

How frequently student has...

- turned in a course assignment late
- came to class without completing assigned readings
- came to class unprepared
- skipped class

Average amount of course reading completed this year

7c. Non-academic Motivations

Importance of the following factors in deciding on student's major
easy

- allows time for other activities

Factor 8. Quantitative Professions

8a. Career Motivation

Importance of the following factors in deciding on student's major

- leads to high paying job
- prepares for fulfilling career
- prestige

8b. Quantitative Skills

Please rate your...

- Current proficiency: Quantitative (mathematical and statistical) skills
- Changes in: Quantitative (mathematical and statistical) skills

Factor T. Use of Time

Ta. Time Employed

How many hours per week student spends...

- Paid employment total
- Paid employment (on campus)
- Paid employment (related to academic interests)

Tb. Academic Time

How many hours per week student spends...

- Attend classes, sections, or labs
- Study and other academic activities outside of class