

STUDENT EXPERIENCE IN THE RESEARCH UNIVERSITY (SERU) PROJECT

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SERU PROJECT TECHNICAL REPORT*

**MEASURES OF NONRESPONSE BIAS ASSOCIATED WITH THE 2008
ADMINISTRATION OF THE UNIVERSITY OF CALIFORNIA
UNDERGRADUATE EXPERIENCE SURVEY**

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ABSTRACT

The current study examining the results of the 2008 University of California Undergraduate Experience Survey (UCUES) is a replication of the nonresponse bias analysis of the 2006 SERU/UCUES survey. Both traditional and response resistance techniques were applied to the academic factor score values of the 2008 SERU/UCUES survey so as to determine the practical significance, based on effect size statistics, of factors that might indicate nonresponse bias. While there were participation rate differences, especially by campus and grade point average, these and other student characteristics were either not associated with group differences or were found to have differences that did not exceed a small effect size threshold. Similarly, the response resistance analyses found examples of trending in mean responses from early to late responders at one campus, but the trends were not replicated across campuses. In addition, an examination of cumulative mean values suggests that a response rate as low as 20% would have adequately represented campus statistics. Taken together, these results suggest that differential weighting of survey responses to mirror population characteristics is not necessary and the observed response rates were adequate.

This document is the 2008 survey administration supplement to the nonresponse bias and response rate report about the 2006 University of California Undergraduate Experience Survey (UCUES) administration¹. It extends the two-pronged analysis of the report on the 2006 administration, examining whether there was (a) demographic over- or under-representation that affected student feedback and (b) evidence of response resistance that might have affected

* The SERU Project is a collaborative effort based at the Center for Studies in Higher Education at UC Berkeley focused on developing new types of data and innovative policy-relevant scholarly analyses of the academic and civic experience of students at major research universities. One of the main products of the SERU Project has been the development and administration of the University of California Undergraduate Experience Survey (UCUES).

¹ Chatman, S.P. (2007). Overview of the University of California Undergraduate Experience Survey (UCUES) Response Rates and Bias Issues. JAD 5.11.07. Center for Studies in Higher Education, Berkeley, CA.

measures. This study of the 2008 administration was able to take advantage of a variety of research findings in the interim, especially the factor analysis of the core academic component of UCUES². All efforts reported in this supplement to find substantive evidence of nonresponse bias used the eight principal components of the common survey core as outcomes. The reliance on principal factor scores instead of the more comprehensive examination of individual items used in the analysis of UCUES 2006 was appropriate due to the lack of substantial effects in 2006.

The first part of the current report consists of the methods used in three levels of analyses and the subsequent results. First, differences in response rates for various groupings were examined in comparison to the overall response rate. Second, differences in the responses themselves were analyzed and will be discussed. Third, based on the first set of results, weighted means were imposed for some variables in a final analysis. Taken together, these various levels of analyses sought to determine if weighting is necessary to account for potential nonresponse bias. Lastly, the second part of the report explores *response resistance*, which is the notion that the tendency to participate early in data collection might be associated with the responses given. If early responders differ from those who delay response until additional appeals are made, then it can be logically assumed that nonresponding students would differ by an even greater amount and that responding and nonresponding students are different (i.e., nonresponse bias). Conversely, if earlier and later responders provide equivalent feedback, then there is no reason to assume that the feedback given by nonresponding students would have differed.

Part 1: Exploring Nonresponse Bias and Effect of Weighted-Mean Adjustments

Step 1 Analyses: Response Rate Differences

The first analysis conducted was a traditional nonresponse examination, using a chi-square test, where the response rates of various groups were compared to determine if the responding students represented the larger student body. For example, if the UC system response rate was about 40%, then we would assume that any subpopulation (e.g., males, Asians, high grade point average students) would have also responded at a 40% rate. Extending this reasoning, the demographic profile of responding students should mirror the profile of all students. Table 1 displays response rates for 12 demographic distributions, including: campus of attendance, grade point average, SAT scores, gender, matriculation status (i.e., entry from high school or other college), class level, first language, first-generation college, and race/ethnicity. Response rate for the grouping is shown in the first column. The next column presents the difference between the observed rate, at the group level, and the overall response rate of 39%, with differences greater than 5% shifted left (negative) and right (positive) for ease in recognition. The next three columns provide counts of responding students, nonresponding students, and

² Chatman, S.P. (2007). A Common Factor Solution for the UCUES 2006 Upper Division Core Items. Center for Studies in Higher Education, Berkeley, CA.

their total. The last column is a chi-square statistic and Cramer's V statistic. This report will use a Cramer's V statistic exceeding 0.1 as a substantive result³.

Table 1 results call attention to 10 instances where subpopulation response rates differed more than about 5% from the overall rate. By campus, Berkeley had a higher response rate and Davis⁴ and Riverside had lower rates. Further, results from a chi-square test revealed that this deviation of response rates by campus did exceed the Cramer's V threshold. Other instances of notable deviation in response rate were (a) grade point average, where students with higher grade point averages (above the campus median), responded at higher rates; (b) gender, where males responded at lower rates and females at higher rates; and (c) race/ethnicity, where African-Americans, Koreans, and Pacific Islanders responded at lower rates. Two of the variables (i.e., *campus* and *grade point average*) were associated with differences beyond the Cramer's V statistic threshold.

In Table 2, the analysis performed in Table 1 is extended to the campus level to better determine if there were sub-group differences in response rates as a function of the UC campus that the students attended. In other words, student class level might not have been an important variable associated with differing response rates overall, but could have been important within a single campus. Replicating the prior analysis by campus found that (Table 2):

- At six of the UC campuses, students above and below their respective campus' GPA median responded at different rates.
- There were differences in response rates by gender at three of the nine UC campuses.

In addition to these instances of important differences, there were several variables that were clearly unassociated with response rate at the campus level, and it is equally important to note this evidence against nonresponse bias. For example, there were no differences of practical significance in response rates across campuses as a function of SAT math, SAT reading, or SAT writing scores. Nor were there differences based on students' (a) manner of matriculation (i.e., from high school versus another two- or four-year college), (b) class level, (c) first-generation college standing, (d) native language, and (e) race/ethnicity. One could therefore argue that the analysis to this point suggests that adjustments, such as differential weighting, might be considered for grade point average, campus, and gender; however, differences in response rate are only one part of the puzzle. If the groups respond at different rates but there is no difference in the response given, then the response rate difference is of little consequence. For example, if we assess satisfaction with social experience and find that the average response by females and males are 5.7 and 5.8, then there is no statistical reason to inflate response rates for underreporting males because the combined statistic would be only slightly affected.

Step II Analyses: Group Differences in Responses Given

Table 3 explores the possibility of group differences across the statistics used in Table 2. The analysis relied on the Type IV F statistic that is a measure of unique contribution to variance

³See page 602 of Gravetter, F. J., & Wallnau, L. B. (2007). *Statistics for the behavioral sciences* (7th ed.). Belmont, CA: Thomson Wadsworth.

⁴ UC Davis did not participate in summer follow-up appeals that tended to boost response rates by about 10% overall.

explained after all other variables have been considered. Due to the large number of cases, an F statistic of 300 or higher was used as a threshold of practical difference. Only those variables associated with principal component factor differences exceeding this threshold will be described. The list of principal component factors and variables associated with differences are:

- 1) Satisfaction with Educational Experience – Grade Point Average
- 2) Current Skills Self-Assessment (Nonquantitative) – SAT Math, Race/Ethnicity, and Class Level
- 3) Engagement with Studies – Grade Point Average and Class Level
- 4) Gains in Self-Assessment of Skills (Nonquantitative) – SAT Reading, Freshman or Transfer, and Class Level
- 5) Development of Scholarship – None
- 6) Campus Climate for Diversity – None
- 7) Academic Disengagement – Grade Point Average and Gender
- 8) Quantitative Professions – Gender
- 9) Time Factor – Grade Point Average and Class Level

For the nine factors, multiple instances of difference were grade point average and class level (four times) and gender (two times). When these differences were combined with the participation rate differences from Tables 1 and 2, where response rates by campus, grade point average, and gender differed substantively, the combined outcomes suggest that the effect of grade point average and gender adjustments be tested to determine whether adjustments are required. These were the two variables where students responded at different rates and the responses given differed. Conversely, of the variables not associated with differences in the type of responses given by participants, the campus variable was the most important because there were clear and frequent participation rate differences by campus. A test to evaluate the effect of differential weighting by campus was not required because mean principal factor scores did not differ by campus. Two variables associated with mean differences were not subjected to weighting for two reasons. First, those variables were not associated with different response rates. Second, the differences observed were clearly expected because they reflected tenure as a University of California student – seniors reported higher scores and gains than freshmen.

Variable	Step I Analyses: Response Rate Difference Greater than Threshold?	Step II Analyses: Value Difference in Response?	Difference in Both Response Rate and Value?
Campus	Yes		
GPA	Yes Yes(5)	Yes(4)	Yes
SAT Math		Yes(1)	
SAT Reading			
SAT Writing			
Gender	Close Close (3)	Yes(2)	Yes
Matriculation Status		Yes(1)	
Class Level		Yes(4)	
First-Generation College			
First Language			
Race/Ethnicity		Yes(1)	

Step III Analyses: The Use of Weighted Values and the Consequence of Such Adjustments

When responses were weighted by GPA (above or below median) and gender (female or male) the impact on principal component factor scores was slight. As shown in the following table, the difference between weighted and unweighted mean values ranged from 0.01 to 0.06. Expressed as an effect size statistic where a difference of 0.20 to 0.30 is considered small, the observed effect sizes were 0.03 or less. In other words, the observed differences were about 1/10th of a small difference. Note that these variables were chosen because they were the most likely to yield differences, and they did not. As was the case in the study of the 2006 data, adjustment for participation rate differences was unnecessary.

Factors	Adjusted Mean	Observed Mean	Difference (Absolute Value)	Standard Deviation	Effect Size
Satisfaction with Educational Experience	4.98	5.03	0.05	1.90	0.03
Current Skills Self-Assessment (Nonquantitative)	4.99	5.02	0.03	1.94	0.02
Engagement with Studies	4.95	4.98	0.03	1.94	0.02
Gains in Self-Assessment of Skills (Nonquantitative)	4.97	4.98	0.01	1.86	0.01
Development of Scholarship	4.98	5.01	0.03	1.97	0.02
Campus Climate for Diversity	5.02	5.03	0.01	1.89	0.00
Academic Disengagement	5.02	4.96	0.06	1.83	0.03
Quantitative Professions	5.04	5.00	0.04	1.99	0.02
Time Factor	4.95	4.96	0.01	1.87	0.01
			Liberal Small effect size = 0.2		

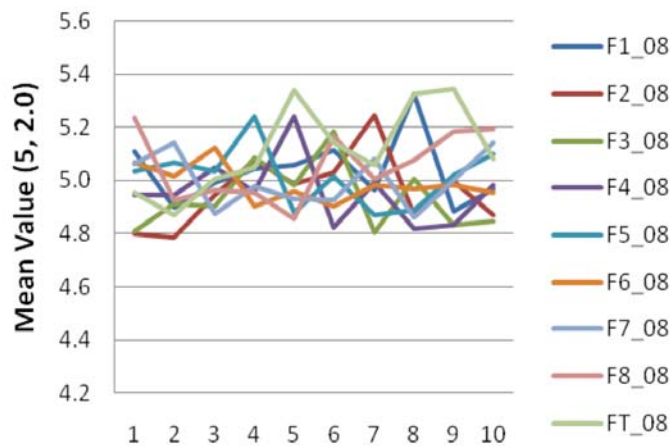
Part 2: Response Resistance

As described in the report on the 2006 administration, response resistance presumes that whatever response pattern tendencies are associated with nonresponse behavior would also be associated with a delayed response that was overcome by additional appeals and incentives. In other words, that nonresponse is not a step function but is curvilinear. The 2008 administration presented an opportunity to examine this issue again but with the expanded student characteristics set used in Part 1 of this report.

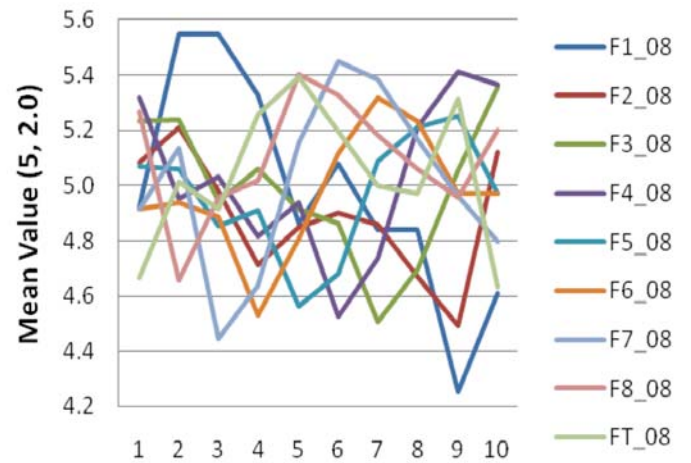
In Table 4, students were first grouped as either early or late responders: They were distributed as being in the first or second half of responding students at their institution. The characteristics of the two halves were then compared for evidence of association using a chi-square test with the Cramer's V statistic. Ideally, we would see each group reflect the overall pattern of about 50% in each column for each characteristic, and that was often the case. Students with SAT math scores in the top half were equally likely to be in the first or second half of responding students. Women were equally split, as were students for whom English was their native language. The largest deviations were seen for African-American students (57% in second half) and students with GPAs in the lower half (55% in second half of responders). The next largest differences were for SAT reading, males, transfers, non-English native speakers, and underrepresented students overall. None of the patterns exceeded the 0.1 threshold for Cramer's V but the evidence shows that efforts to encourage late responders and to extend the collection interval are helpful in increasing participation among several groups of special interest regarding diversity and inclusion.

A last examination of response resistance began with a graphical examination. Students at the three institutions with the highest response rates were sorted into deciles based on time until participation in the survey. The means and standard deviations of the eight principal component factors and time factor were graphed over the ten intervals. If there was no evidence of response resistance, then the lines would yield a random or irregular pattern. For the Irvine and Santa Cruz campuses, that was clearly the case (see below).

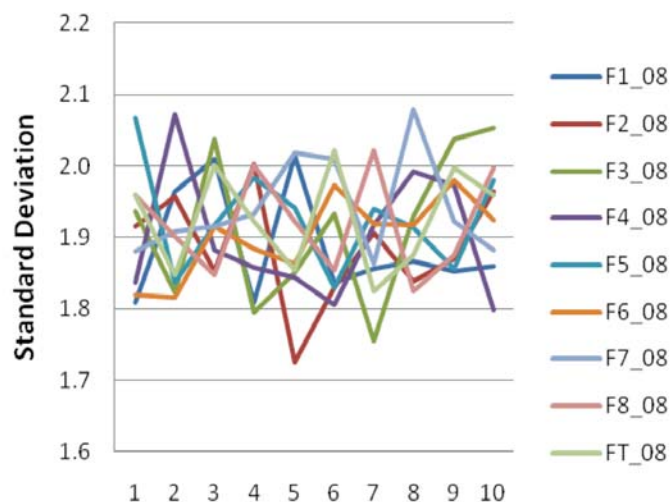
Irvine Mean Factor Scores by Decile



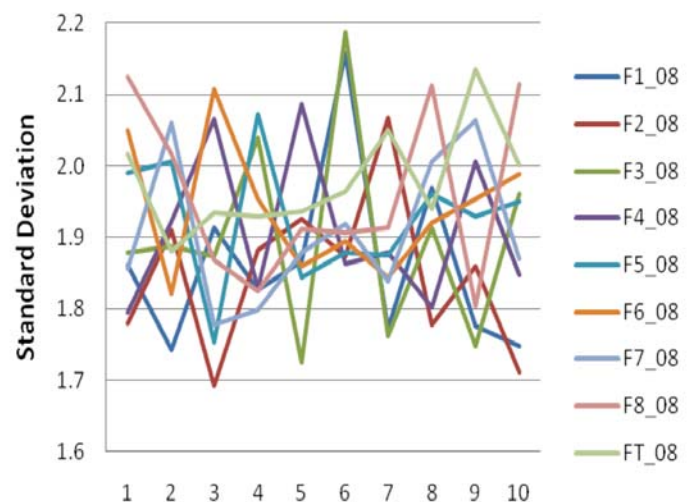
Santa Cruz Mean Factor Scores by Decile



Irvine Variance Over Time

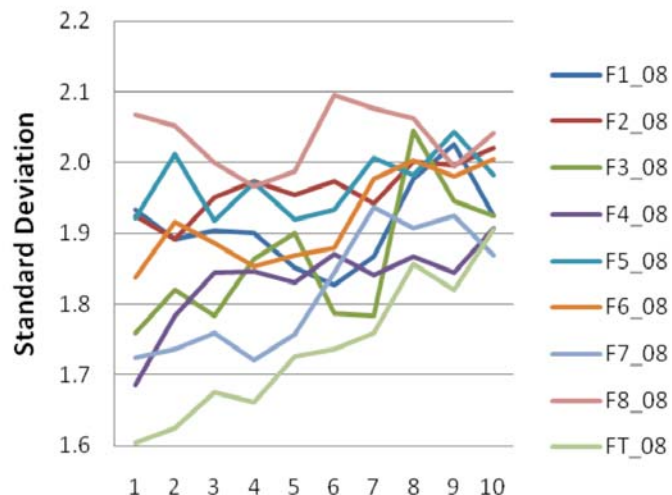


Santa Cruz Variance Over Time

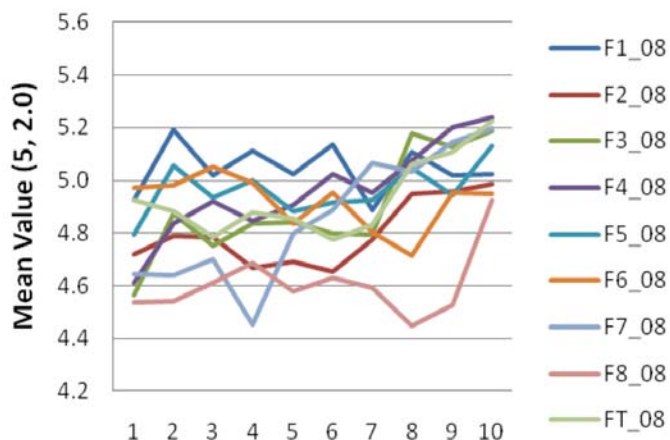


F1_08 - Satisfaction with Educational Experience	F6_08 - Campus Climate for Diversity
F2_08 - Current Skills Self-Assessment (Nonquantitative)	F7_08 - Academic Disengagement
F3_08 - Engagement with Studies	F8_08 - Quantitative Professions
F4_08 - Gains in Self-Assessment of Skills (Nonquantitative)	FT_08 - Time Factor
F5_08 - Development of Scholarship	

Berkeley Variance Over Time



Berkeley Mean Factor Scores by Decile



F1_08 - Satisfaction with Educational Experience	F6_08 - Campus Climate for Diversity
F2_08 - Current Skills Self-Assessment (Nonquantitative)	F7_08 - Academic Disengagement
F3_08 - Engagement with Studies	F8_08 - Quantitative Professions
F4_08 - Gains in Self-Assessment of Skills (Nonquantitative)	FT_08 - Time Factor
F5_08 - Development of Scholarship	

Unlike the irregular patterns observed for Irvine and Santa Cruz, the Berkeley pattern (displayed above) was more troubling. Two of the factor means trended up from first to last and the standard deviation ranges were smaller among later responders. The magnitude of the changes for these three campuses can be shown by tracking cumulative mean scores. If we continue to use a 0.2 effect size — a difference of 0.4 for these distributions — then there were two instances where the cumulative mean changed by a small amount over data collection. At Berkeley, gains in self-assessment of skills (nonquantitative) were higher for later responders. At Santa Cruz, students spending more time on academics responded later. Overall, the changes were small in magnitude and do not support a hypothesis of disaffected or unhappy students responding at lower rates. The cumulative distributions also suggest that the 30% response rate standard asserted by the project is reasonable but that even a 20% response rate would have been adequate (see decile tables below), with perhaps one exception at Berkeley for disengagement where the score would have been underestimated if collection had stopped at a 20% response rate.

Decile Mean Scores and Cumulative Mean Scores at Irvine

	F1	F2	F3	F4	F5	F6	F7	F8	FTime
Mean values by decile (about 500 per decile)									
First	5.1	4.8	4.8	4.9	5.0	5.1	5.1	5.2	5.0
Second	4.9	4.8	4.9	4.9	5.1	5.0	5.1	4.9	4.9
Third	5.0	4.9	4.9	5.0	5.0	5.1	4.9	5.0	5.0
Fourth	5.0	5.1	5.1	5.0	5.2	4.9	5.0	5.0	5.0
Fifth	5.1	5.0	5.0	5.2	4.9	5.0	4.9	4.9	5.3
Sixth	5.1	5.0	5.2	4.8	5.0	4.9	4.9	5.2	5.1
Seventh	5.0	5.2	4.8	5.0	4.9	5.0	5.1	5.0	5.1
Eighth	5.3	4.9	5.0	4.8	4.9	5.0	4.9	5.1	5.3
Ninth	4.9	5.0	4.8	4.8	5.0	5.0	5.0	5.2	5.3
Last	5.0	4.9	4.8	5.0	5.1	5.0	5.1	5.2	5.1
Cumulative values									
First	5.1	4.8	4.8	4.9	5.0	5.1	5.1	5.2	5.0
Second	5.0	4.8	4.9	4.9	5.1	5.0	5.1	5.1	4.9
Third	5.0	4.8	4.9	5.0	5.0	5.1	5.0	5.0	4.9
Fourth	5.0	4.9	4.9	5.0	5.1	5.0	5.0	5.0	5.0
20% RR Fifth	5.0	4.9	4.9	5.0	5.1	5.0	5.0	5.0	5.0
Sixth	5.0	4.9	5.0	5.0	5.0	5.0	5.0	5.0	5.1
Seventh	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1
~30% RR Eighth	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1
Ninth	5.0	5.0	4.9	5.0	5.0	5.0	5.0	5.0	5.1
Last	5.0	5.0	4.9	5.0	5.0	5.0	5.0	5.1	5.1

RR = Response Rate

Decile Mean Scores and Cumulative Mean Scores at Santa Cruz

	F1	F2	F3	F4	F5	F6	F7	F8	FTime
Mean values by decile (about 500 per decile)									
First	4.9	5.1	5.2	5.3	5.1	4.9	4.9	5.3	4.7
Second	5.5	5.2	5.2	5.0	5.1	4.9	5.1	4.7	5.0
Third	5.5	5.0	4.9	5.0	4.9	4.9	4.4	5.0	4.9
Fourth	5.3	4.7	5.1	4.8	4.9	4.5	4.6	5.0	5.3
Fifth	4.9	4.8	4.9	4.9	4.6	4.8	5.2	5.4	5.4
Sixth	5.1	4.9	4.9	4.5	4.7	5.1	5.5	5.3	5.2
Seventh	4.8	4.9	4.5	4.7	5.1	5.3	5.4	5.2	5.0
Eighth	4.8	4.7	4.7	5.2	5.2	5.2	5.2	5.1	5.0
Ninth	4.3	4.5	5.1	5.4	5.3	5.0	5.0	5.0	5.3

	Last	4.6	5.1	5.4	5.4	5.0	5.0	4.8	5.2	4.6
Cumulative values										
	First	4.9	5.1	5.2	5.3	5.1	4.9	4.9	5.3	4.7
	Second	5.1	5.1	5.2	5.1	5.1	4.9	5.0	5.0	4.9
	Third	5.2	5.1	5.1	5.1	5.0	4.9	4.9	5.0	4.9
	Fourth	5.3	5.0	5.1	5.0	5.0	4.9	4.8	5.0	5.0
~20% RR	Fifth	5.2	5.0	5.1	5.0	4.9	4.8	4.9	5.1	5.1
	Sixth	5.2	5.0	5.0	5.0	4.9	4.9	5.0	5.1	5.1
~30% RR	Seventh	5.1	4.9	5.0	4.9	4.9	5.0	5.1	5.1	5.1
	Eighth	5.1	4.9	5.0	5.0	4.9	5.0	5.1	5.1	5.1
	Ninth	5.1	4.9	5.0	5.0	5.0	5.0	5.1	5.1	5.1
	Last	5.0	4.9	5.0	5.1	5.0	5.0	5.0	5.1	5.1

Decile Mean Scores and Cumulative Mean Scores at Berkeley

		F1	F2	F3	F4	F5	F6	F7	F8	FTime
Mean values by decile (about 1,100 per decile)										
	First	4.9	4.7	4.6	4.6	4.8	5.0	4.6	4.5	4.9
	Second	5.2	4.8	4.9	4.8	5.1	5.0	4.6	4.5	4.9
	Third	5.0	4.8	4.8	4.9	4.9	5.1	4.7	4.6	4.8
	Fourth	5.1	4.7	4.8	4.8	5.0	5.0	4.5	4.7	4.9
	Fifth	5.0	4.7	4.8	4.9	4.9	4.8	4.8	4.6	4.9
	Sixth	5.1	4.7	4.8	5.0	4.9	5.0	4.9	4.6	4.8
	Seventh	4.9	4.8	4.8	5.0	4.9	4.8	5.1	4.6	4.8
	Eighth	5.1	4.9	5.2	5.1	5.0	4.7	5.0	4.4	5.1
	Ninth	5.0	5.0	5.1	5.2	4.9	5.0	5.1	4.5	5.1
	Last	5.0	5.0	5.2	5.2	5.1	4.9	5.2	4.9	5.2
Cumulative values										
	First	4.9	4.7	4.6	4.6	4.8	5.0	4.6	4.5	4.9
	Second	5.1	4.8	4.7	4.7	4.9	5.0	4.6	4.5	4.9
	Third	5.0	4.8	4.7	4.8	4.9	5.0	4.7	4.6	4.9
20% RR	Fourth	5.1	4.7	4.8	4.8	4.9	5.0	4.6	4.6	4.9
	Fifth	5.1	4.7	4.8	4.8	4.9	5.0	4.6	4.6	4.9
30% RR	Sixth	5.1	4.7	4.8	4.9	4.9	5.0	4.7	4.6	4.8
	Seventh	5.0	4.7	4.8	4.9	4.9	4.9	4.7	4.6	4.8
	Eighth	5.1	4.8	4.8	4.9	4.9	4.9	4.8	4.6	4.9
	Ninth	5.0	4.8	4.9	4.9	4.9	4.9	4.8	4.6	4.9
	Last	5.0	4.8	4.9	5.0	5.0	4.9	4.9	4.6	4.9

Conclusion

This report describes the results of a nonresponse bias evaluation of the 2008 University of California Undergraduate Experience Survey (UCUES). The analysis was in two parts. The first part began with a typical nonresponse bias study based on group composition differences. The second part of the report considered whether nonresponse bias due to response resistance was in evidence. In the first part of the study, the characteristics of responding and nonresponding students were compared on a large number of demographic and academic variables to determine whether their distributions were substantively different. Three areas of difference were found: campus, grade point average, and gender. The responses given by students were then compared to determine whether mean values differed by these and other characteristics. Mean responses by campus did not differ, but grade point average and gender differed. Student responses were then weighted by the correct proportions to adjust for grade point average and gender distributions, and the weighted mean scores were compared to the original, unweighted mean values. Weighted and unweighted scores were not substantively different. To summarize the results from the first part of this report, there were dimensions along which participation rates differed, but those differences were seldom associated with differences in student responses given. For example, response rates were different by campus but mean response values did not differ by campus. Therefore, there was no practical need to weight responses to adjust for campus response rate differences. For the two variables where both response rates and the mean responses given differed, adjusting mean values for the differences produced very similar statistics of no practical difference. Weighted and unweighted means were not substantively different. Part 1 concluded that there was insufficient evidence to support weighting to compensate for nonresponse bias.

Part 2 of this report then sought evidence of response resistance where early responders differed from later responders. Differences between early and later responders would be evidence that the group of responding students should not be considered a random sample of the population. The demographic characteristics of early and later responders were reasonably similar and did not support differential weighting. Responding students at the three campuses with the highest response rates were then sorted into deciles based on response order (i.e., first 10%, second 10%, ... last 10%). The mean values and standard deviations of responses were examined across deciles to determine whether there was evidence of a trend when examined in this greater detail. For the Berkeley campus, students responding later tended to have higher scores with less variance. That was not true for the campuses with the next two highest response rates: Irvine and Santa Cruz. The peculiar pattern seen for Berkeley was not indicative of a general trend. While the temporally ordered deciles offered interesting insights and while there should be an attempt to replicate the Berkeley pattern, survey results are cumulative values and trending in later deciles is muted in practice by the more robust cumulative statistic. For example, if the last decile group mean was much higher than the cumulative mean to that point in time, the impact of the last tenth will still only be 1/10th of the final value. Using this more pragmatic standard that reflects actual practice, there was no substantive evidence of nonresponse bias coming from response resistance. Cumulative values were also used to

assess response rates less than 40% and the project's standard of 30% was confirmed to be a reasonable standard even though a response rate of 20% would have been adequate.

To summarize, this study of 2008 UCUES responses supports the conclusions reached from a similar study of 2006 student UCUES responses. While there was evidence of some demographic and academic differences in participation rates, few of those differences were associated with the responses given by students and none were substantive when compensatory differential weighting was employed. Likewise, there was little evidence of response resistance and no evidence that observed differences between early and later responders warranted concern or special weighting.

Table 1: Traditional Nonresponse Bias Demographics

	Response Rate	Difference from Unweighted, Overall Response Rate			Responded	Did Not Respond	Total	Chi Square / Cramer's V
		Low <5%	Middle 5%<x>5%	High >5%				
Campus								
Berkeley	50%			10.3%	11,833	12,070	23,903	1,962
Davis*	31%	-7.8%			7,040	15,411	22,451	0.11
Irvine	40%		0.9%		8,626	12,909	21,535	
Los Angeles	37%		-2.6%		9,120	15,862	24,982	
Merced*	37%		-1.9%		621	1,046	1,667	
Riverside	34%	-4.7%			4,957	9,422	14,379	
San Diego	38%		-1.5%		8,107	13,414	21,521	
Santa Barbara	41%		2.2%		7,402	10,484	17,888	
Santa Cruz	42%		2.7%		5,829	8,106	13,935	
GPA (Above or below campus median)								
Top Half	44%			4.9%	36,036	45,833	81,869	1,638
Bottom Half	34%	-4.9%			27,499	52,891	80,390	0.10
SAT Math								
Top Half	42%		2.6%		30,259	42,154	72,413	329
Bottom Half	37%		-2.2%		22,984	39,240	62,224	0.05
SAT Reading								
Top Half	43%		4.0%		31,297	41,179	72,476	869
Bottom Half	35%		-3.9%		21,946	40,215	62,161	0.08
SAT Writing								
Top Half	43%		4.2%		30,060	39,236	69,296	857
Bottom Half	36%		-3.6%		22,962	41,632	64,594	0.08
Gender								
Female	43%		3.9%		37,665	49,868	87,533	1,189
Male	35%	-4.5%			25,794	48,671	74,465	0.09
Matriculation Status								
Matriculant from High School	40%		0.6%		50,363	76,445	126,808	65
Transfer Student	37%		-1.8%		12,525	21,046	33,571	-0.02
Class Level								
Freshman	41%		1.9%		12,191	17,497	29,688	87
Sophomore	40%		0.9%		13,315	19,966	33,281	0.02
Junior	38%		-0.7%		16,615	26,592	43,207	
Senior	38%		-1.0%		21,414	34,669	56,083	

Table 1 (Continued): Traditional Nonresponse Bias Demographics

	Response Rate	Difference from Unweighted, Overall Response Rate			Responded	Did Not Respond	Total	Chi Square / Cramer's V
		Low <5%	Middle 5%<x>5%	High >5%				
First-Generation College								
Four-Year College	40%		0.4%	35,869	54,819	90,688	7 0.01	
Less than Four-Year College	39%		-0.3%	22,946	36,110	59,056		
First Language								
English	40%		1.2%	33,632	49,641	83,273	104	
English Plus Another Language	38%		-1.6%	17,013	28,282	45,295	0.03	
Another Language	39%		-0.5%	11,968	18,966	30,934		
Race/Ethnicity								
A = Established Immigrant	37%		-1.8%	4,923	8,239	13,162	158 0.03	
B = White	41%		1.4%	22,348	32,692	55,040		
C = Newer Immigrant	40%		0.6%	17,545	26,537	44,082		
D = Underrepresented Minority	38%		-1.6%	12,008	19,986	31,994		
E = African-American	34%		-4.8%	1,747	3,345	5,092		
American Indian/Alaskan Native	41%		2.0%	352	503	855	466 0.05	
Black/African-American	34%		-4.8%	1,747	3,345	5,092		
Chicano/Mexican-American	37%		-2.0%	6,786	11,496	18,282		
Chinese/Chinese-American	42%		3.1%	11,315	15,445	26,760		
Decline to State	40%		0.4%	3,280	5,006	8,286		
East Indian/Pakistani	36%		-3.6%	1,824	3,302	5,126		
Japanese/Japanese-American	38%		-1.5%	1,299	2,150	3,449		
Korean	33%		-6.5%	3,002	6,191	9,193		
Latino/Other								
Spanish-American	39%		-0.4%	2,403	3,790	6,193		
Other	36%		-3.1%	1,126	1,995	3,121		
Pilipino/Filipino	37%		-1.7%	2,819	4,700	7,519		
Pacific Islander	34%		-5.3%	201	392	593		
Thai/Other Asian	39%		0.1%	1,800	2,787	4,587		
White/Caucasian	41%		1.4%	22,348	32,692	55,040		
Vietnamese	40%		0.6%	3,228	4,901	8,129		
Summary	39.2%			63,535	98,724	162,261		