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A Student Experience in the Research University (SERU)
Project Research Paper[*]

DOES DIVERSITY MATTER IN THE EDUCATION PROCESS?
An Exploration of Student Interactions by Wealth, Religion, Politics, Race,
Ethnicity and Immigrant Status at the University of California[**]

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ABSTRACT
This exploration into student interactions that improve understanding, student attachment, and demographic characteristics of students attending the University of California in the spring of 2006 finds the University to be a diverse and healthy environment. Interactions among students with demographic differences are frequent and are rarely associated with decreased sense of belonging. The research offers quantitative measures for legal concepts like critical mass and compelling state interest. Overall, rich or poor, religious or not religious, immigrant or Mayflower, Republican or Democrat, underrepresented minority or overrepresented majority, UC students feel that they belong at the University of California. In spite of strong scores across the board and only a few relative deficiencies, the University is encouraged to expand discussions about diversity, to launch a more thorough examination of campus climate generally, and to especially consider the experiences of low income and African American students.

A.   Summary of Findings
The most important finding is that there was a great deal of interchange among undergraduate students of a type that led to better understanding of differences in all measures examined: wealth, religion, race/ethnicity, immigrant status, and politics. Over 40% of students reported that their understanding of others was often improved through personal interactions with other students who differed from them in terms of SES, politics

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[*] The SERU Project is a collaborative study based at the Center for Studies in Higher Education at UC Berkeley and focused on developing new types of data and innovative policy relevant scholarly analyses on 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). For further information on the project, see http://cshe.berkeley.edu/research/seru/

[**] The eight University of California campuses included in this study have been assigned two letter codes. A guide to the label for a specific UC campus is available by permission through that campus's representative on the SERU/UCUES IR Work Group (see http://cshe.berkeley.edu/research/seru/team.htm).

and religion. Discussions more commonly occurred (about 60% reporting frequent) where the topic was race/ethnicity and nationality—student differences that were more apparent because of visual differences or accent. Please note that in all cases, students were attributing change to the fact that the other student in the discussion possessed the differing characteristics. This finding goes to the very heart of the argument that diversity must be present in the student body, not only the curriculum.

The analysis consisted of two parts. In the first section, frequency of interaction resulting in improved understanding of another's viewpoint was the dependent variable. It addressed questions asking how frequently these discussions occurred and whether frequency was associated with group characteristics, size or campus composition. The second part examined whether the likelihood that students reported that they belonged at a UC campus was associated with the same variables: group characteristics, size or campus composition. Obviously, the University desires that these interactions be frequent and that they not reduce the participants' sense of belonging at the University.

It is possible that a student would feel discouraged from talking about her differences, religious beliefs for example, and the analysis used here would miss that circumstance unless the discouragement so affected the student's experience that she grew to feel that she did not belong. Use of overall sense of belonging is less sensitive to content area differences but overall sense of belonging is asserted as the more critically important measure.

SES
Frequency of Interactions
There was a remarkably linear relationship between size of SES group and frequency of significant diversity interactions where SES was a factor. Smaller groups interacted more frequently as would be expected if interactions were largely random—the probability of meeting someone from a different SES class is higher if you are part of a small group. This probabilistic pattern suggests an egalitarian social structure.

Sense of Belonging
Low income or poor students were less likely to agree that they belonged at their UC campus. This could be a matter of concern and should be the subject of future research because there is no evidence here that would explain why they were less likely to feel that they belonged.

Immigrant Status or Nationality
Frequency of Interactions
Students who were foreign by birth or first-generation Americans were far more likely to report significant interactions. There was little difference between second generation students and students whose families have been American for more generations.

Sense of Belonging
There was apparently no relationship between sense of belonging and whether the student or the student's family had been U.S. citizens at birth.

Political Identification
Frequency of Interactions
Students self-identified as Republican or Independent but leaning toward Republican were more likely to engage in political diversity interactions. This pattern might be

explained by relative size or relative political difference from the norm—few students were Republican.

Sense of Belonging
There was no relationship between political affiliation and sense of belonging. Minority Republican students were like majority Democrats in believing that they belonged at the University of California.

Race/Ethnicity
Frequency of Interactions
There was evidence supporting both the difference from the norm and group size explanations for frequency of interactions because underrepresented students, a relatively small group, experienced more diversity interactions. There was also evidence supporting campus compositional diversity because students attending the two campuses least like the UC in racial/ethnic composition, TB and SS, reported fewer interactions. The campus pattern of interactions by percent underrepresented did not support a critical mass argument. There was not a compositional point associated with a large change in interactions that would suggest a threshold. Instead, there was evidence of a campus effect because campuses with similar compositions had very different interaction rates and there was some evidence of a positive relationship between percent underrepresented and frequency of interactions.

Sense of Belonging
African American students were less likely to report that they belonged at a UC campus. That was not true of Chicano-Latino students, another underrepresented minority. Therefore, belonging was not a simple result of being from an underrepresented minority group. That African American students had a lower sense of belonging may be a matter of concern and should be the subject of future research. While African Americans rated belonging lower than average, the large majority of African American students did feel that they belonged (74%) at the University of California.

There was a dramatic increase in percent of African Americans reporting that they belonged when African American students were more than 5% of the campus population. This suggests that a 5-10% composition figure might be adequate to attain rates comparable to the UC average. It would be useful to extend the analysis to UC campuses with more than 10% African American but that is not possible. This finding supports a critical mass argument and suggests that the threshold might be a reasonably attainable 5-10% with targeted admissions. A follow-up study to understand factors underlying this finding is justified.

Religion
Frequency of Interactions
The array of interactions by campus composition was a random pattern. Frequency of interaction appeared to be independent of campus compositional differences. Overall, students who were not religious were less likely to engage in religious discussions but that might be a function of group size. There was evidence that smaller religious groups interacted more frequently. For example, one of the smaller groups, Muslim students, interacted and gained by that interaction the most frequently.

Sense of Belonging

Overall, religious students were more likely to report a sense of belonging at UC campuses. Interestingly Muslim and Jewish students reported the highest levels of belonging at the University of California. Whatever religiously-based controversies exist among students they did not cause students to feel alienated.

B.   The Educational Value of Diversity – The Argument

If we respectfully set aside conventional academic knowledge and the expert opinion of faculty, there is surprisingly little evidence supporting diversity in race, religion, socioeconomic status and political viewpoint as a compelling interest for public higher education. There is even less basis for establishing a pedagogical performance standard for this desired outcome. For example, Lee Bollinger[1] asserted in his recent essay, "Why Diversity Matters[2]" that "The experience of arriving on a campus to live and study with classmates from a diverse range of backgrounds is essential to students' training for this new world." Bollinger cites the ability to lead an increasingly diverse society, greater spirit of community on campuses and between campus and local community, and a new age of exploration to discover new areas of knowledge as reasons to use admissions to form a diverse student body.

The University of Michigan in *Grutter v. Bollinger* was joined by hundreds of organizations submitting 64 *amicus curiae* briefs. These included many academics, labor unions, corporations, and about 30 retired military personnel including three former chairmen of the Joint Chiefs of Staff, and famous generals Norman Schwarzkoph and Wesley Clark. (The U.S. military academies do give preference to underrepresented minority applicants in admission.) The arguments made are intuitively appealing, logically consistent and as predicted by human developmental theory. Unfortunately, there is little direct evidence cited that interpersonal relationships in college are a necessary or sufficient condition for development of the listed skills or that the skills were actually developed.

This is not to discount the strength of arguments for college racial diversity based on the experience of the corporations or especially of the military. In recounting the integration of the military, the *amicus curiae* brief[3] described a period during the 1960s and 1970s of demoralizing and destabilizing internal racial strife. In describing conditions in the marines it stated, "White officers were simply unaware of intense African-American dissatisfaction with job assignments and the perceived lack of respect …" (p. 15). That "African-American troops, who rarely saw members of their own race in command positions, lost confidence in the military as an institution" (p. 16). The military assessed its race problem as "so critical that it was on the verge of self-destruction" (p. 16). The experience of the military was cited for continued support of its race conscious admissions standards, a practice that was not questioned by the Court. Of course, military strength is without question a compelling state interest.

Major U.S. corporations joined in the support of respondents and the *amici curiae* brief of General Motors Corporation serves as a particularly strong example.[4] The General Motors argument can be summarized as: "General Motors depends upon the University of Michigan and similarly selective academic institutions to prepare students for employment" (p. 1) and that "In General Motors' experience, only a well educated, diverse work force, comprising people who have learned to work productively and

creatively with individuals from a multitude of races and ethnic, religious, and cultural backgrounds, can maintain America's competitiveness in the increasingly diverse and interconnected world economy" (p. 2). General Motors asserted first hand experience for their support of Respondents and asserted that the preparation they desired required interaction among students possessing the differences, "actual interaction with *peers* of different races is far superior to merely reading or watching a movie about racial issues" (p. 10). In sum, the bottom line for General Motors is "Having high-level employees who possess cross-cultural competence is essential for a business to profit from these vast market opportunities." (p. 13).

Patricia Gurin, now professor *emerita* of Psychology and Women's Studies at Michigan, was chief expert witness before the Court. However Gurin's work and the research she cited suffers from problems with operational definitions and failure to control for student predilections and curricular differences by area of academic study. In particular, differences in intellectual engagement and instructional practices that vary by discipline could explain her findings of intellectual gains.[56]

For example, Gurin's 2000 Michigan Student Study found positive relationships between multiple learning outcomes (e.g., active learning, intellectual engagement) and experiences with diversity and were confirmed by analysis of 184 institutions.[7] The problem is that these learning outcomes have been shown by Nelson-Laird[8] and Chatman[9] to vary with academic discipline with social sciences and humanities scoring higher than sciences and engineering and both diversity experiences and sensitivity to diversity issues are higher in the social sciences and humanities. Similarly, the Program on Intergroup Relations, cited during Gurin's expert testimony required self-selection into an extraordinary first course (seven weeks of two-hour structured dialogues about diversity).[10] All in all, there should be a more robust body of evidence given the magnitude of its use in admissions.

The question of demonstrated outcomes and requisite composition was raised most recently in Chief Justice Roberts' majority opinion in *Parents Involved in Community Schools v. Seattle School District No. 1 Et Al.*[11]

> In design and operation the plans are directed only to racial balance, an objective this Court has repeatedly condemned as illegitimate. They are tied to each district's specific racial demographics, rather than to any pedagogic concept of the level of diversity needed to obtain the asserted educational benefits. Whatever those demographics happen to be drives the required "diversity" number in each district. The districts offer no evidence that the level of racial diversity necessary to achieve the asserted educational benefits happens to coincide with the racial demographics of the respective districts, or rather the districts' white/nonwhite or black/"other" balance, since that is the only diversity addressed by the plans. (pp. 4-5)

As a prestigious university system located in a state that tends to be first in experiencing societal trends and as a university system that uses comprehensive review of applications to shape a diverse student body, it is important that the University of California examine conventional academic wisdom is this area and begin the process of setting clearly defensible criteria and compositional requirements.

The resulting standards might well produce a student profile that far exceeds that of the population of California in minority representation on a variety of characteristics. The conventional wisdom that this study begins to examine is something like the following: That creation of a diverse student body through admissions, joined by policies governing civil discourse and opportunities for in-class and out-of-class interaction, produces graduates able to succeed in a diverse workforce. The outcome is typically assumed and the contribution of the various elements to this assumed outcome cannot be determined.

This paper pursues two lines of reasoning to better inform diversity discussions. In the first section it will focus on campus composition and frequency of student interactions that result in increased understanding between different groups. The second section will look for a relationship between students' personal ratings of sense of belonging and campus composition.

The first section is clearly the more important analysis because increase in interpersonal understanding should take precedence over student comfort. It may be the case that a homogeneous environment with little difference in student characteristics, experience or opinion is comfortable but less challenging and that an environment richer in differences is less comfortable and more challenging. Comfort cannot justify exclusion. At the same time, the University is committed to respectful interchange among differing parties and must work against isolation and anger due to differences when interactions occur.

C.   First Question – Is composition related to frequency of positive diversity experiences?

Central to arguments supporting the use of nonacademic characteristics in admissions is the assumption that an environment with direct interchange among differing participants will yield desired outcomes and that this interchange depends on the participants possessing the characteristics in question. For example, it is not enough that students be instructed in racial differences or that they discuss them with similar peers; they should instead learn about racial differences through interaction with peers of different races and ethnicities. It is assumed that direct interaction with differing peers will produce qualitatively, if not quantitatively, superior learning.

 The SERU[12] Project's 2006 UCUES[13] survey of the undergraduate population can help to inform discussion regarding peer interaction. Students were asked the following series of questions.

> How often have you gained a deeper understanding of other perspectives through conversations with fellow students because they differed from you in the following ways?
>
>> Their religious beliefs were very different than yours
>> Their political opinions were very different from yours
>> They were of a different nationality than your own
>> They were of a different race or ethnicity than your own
>> Their sexual orientation[14] was different

Student response to these queries provides useful, if soft, evidence of diversity benefits. On one hand, as self assessments, their value is undoubtedly limited by subjective

perception of change and attribution of the source of that change. Moreover, students were asked to rate the frequency of occurrence, not the extent of change. On the other hand, they do provide a new and statistically powerful resource summarizing the opinions of nearly 58,000 students representing the 150,000 University of California undergraduate student body and it is reasonable to assume that students reporting that they at least somewhat often gained in understanding were very likely experiencing interchanges that yielded intended diversity outcomes.

The first series of graphs display frequency of interchange by campus diversity level and frequency of interchange by size of demographic grouping for religion, race/ethnicity, SES, nationality and political affiliation. These variables were selected because university records or responses to other items could be used to determine group membership. The campuses included were the eight University of California campuses with undergraduate programs. The newest campus, Merced, was not included because it was in its first year and presented a unique student experience in many respects. The UC campuses are similar in student academic composition, ranging from selective to highly selective, and each campus provides comprehensive academic program options. This level of similarity helps to control for individual differences.

The second series of graphs display percentage of students agreeing with the statement, "I feel that I belong at this campus" by diversity and size of individual groups. Agreement with the statement is considered a global measure of satisfaction that ideally would be unaffected by religion, race/ethnicity, SES, nationality, or political affiliation. This report is an exploratory analysis of these topics that relies on graphical presentations supported by detail available in the appendix.

Definitions
UCUES Survey
The UCUES survey is the primary data collection activity of the SERU project. It is a UC collaborative process financially and administratively support by the Office of the President and campus contributions. The mission of UCUES is to support and inform academic research and administrative applications. It is unique in scope and nature. Data are collected by Internet-based survey administration of a core academic instrument and randomly assigned modules: academic engagement, civic engagement, student development, student services, and a tailored set of campus-specific items.

Diversity Index
Quantifying diversity is a difficult problem and each solution has limitations. The diversity index used in this report is a measure of the extent to which the campus profile reflects the profile for all UC campuses. It is a measure of variance relative to that found across the UC system. For example, if campus one has 10% group A and 90% group B when the University system is 20% A and 80% B then the diversity index would be about 1-(|.10-.20|)+(|.90-.80|) = .80. Among other options considered were the *USA Today* Index, where equal distribution among groups yields greatest diversity and a simple focus on minority proportion.

Neither of these later two alternatives was well suited to the University of California's demographic statistics considered here. A reasonable alternative would have been to measure difference from societal rates. That option was rejected for practical and pragmatic reasons. As a practical matter, the distribution for some of the demographics considered here are not available for Californians 18-24. Pragmatically, to have used

demographics for all Californians in the same age range as UC students would have incorporated large, known discrepancies for SES, gender and race/ethnicity that are confounded with educational attainment and preparation. The composition of all enrolled UC students better controls the confounding –all students attending UC campuses met admissions requirements– and still permits measurement associated with relative differences. A problem inherent in the diversity index used in this paper is that it measures deviation from the UC average but does not attach a value to that deviation. For example, a campus with differentially more Asian students might have the same index score as a campus with differentially more African American students – the nature of the deviation does not affect the diversity index.

Compelling Interest
The crux of *Grutter v. Bollinger*, University of Michigan Law School admissions case where race as a factor was confirmed by the U.S. Supreme Court, was that the law school had a "compelling interest in securing the educational benefits of a diverse student body" (No. 02-241; June 23, 2003). The Court deferred to the university's claim that the educational benefits of a diverse student body required that the student body personally represented that diversity. It would behoove higher education to demonstrate evidence in support of that contention.

Critical Mass
In executing its compelling interest in a diverse student body, a standard of attaining critical mass was asserted. Depending on the witness speaking, critical mass means:

- "meaningful numbers" or "meaningful representation"
- a number that encourages participation in the classroom
- a number sufficiently large to prevent a sense of isolation or a sense that the speaker is acting as a spokesperson for their race
- a number that when achieved causes stereotypes to lose their force

What critical mass is not and cannot lawfully be is a fixed percentage or specific number because that would constitute an unconstitutional quota. However, an approximate figure or range would have been helpful. If we use the range of underrepresented minority composition at the University of Michigan's Law School as evidence, then a 10%-20% range would be suggested. Setting aside the legalese, the presumption of an approximately proportionate percentage, and the fact that critical mass is a concept limited to underrepresented minorities, it would be useful to demonstrate an association between student composition and educational benefit and, if possible, a minimally required compositional level at which student interchange changes significantly, a critical mass.

Results
The following graphs and tables display students' self-reported frequency of conversational incidents during which they developed a better understanding of a significantly different viewpoint because the other person in the discussion possessed different characteristics. Note that students were not reporting that they changed their point of view, only that they better understood the viewpoint of others.

SES

Across the UC system, 41% of all undergraduates reported that they often[15] increased in understanding of other viewpoints through interactions with students who were from a different social class. Self-assigned SES was distributed as low income or poor (11%), working class (22%), middle-class (37%), upper-middle or professional-middle (29%), and wealthy (2%). Diversity experiences were most common in the low-income or poor and wealthy classes (52%), followed by working-class (45%), upper-middle or professional-middle (40%), and middle-class (36%).

This first analysis suggests that group size and probability of interaction with someone from another group might be directly related. It is an appealing argument because the probability that the next person that you meet will be from a different social class is directly related to the rarity of your class. At an extreme, unless Bill Gates were to bump into Warren Buffet as he walked across campus, everyone he meets will be from a different economic class. To increase statistical power, the two extreme categories were combined with the next class. Lower-income or poor and working class were combined at the lower end of SES ranges and upper-middle or professional-middle and wealthy were combined at the upper end.

The relationship between group size and probability of diverse interaction appears to be remarkably linear in this graph. The smaller the size of the group, the more likely they were to have diverse interactions.


Figure 1: Significant Interactions by SES Group Size
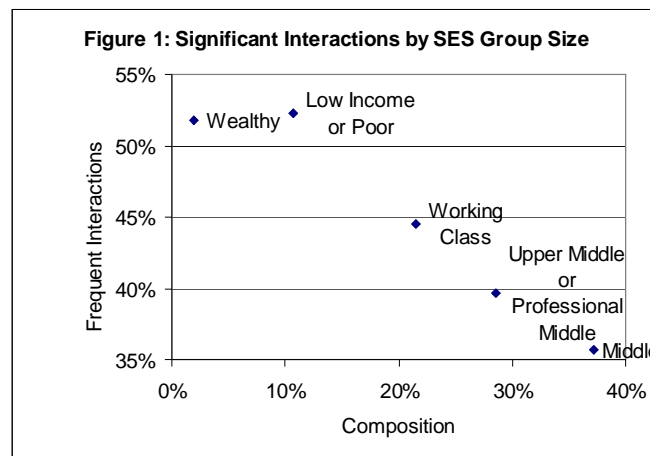
When campus[16] interactions were arrayed by diversity index, some interesting patterns emerged. (Recall that the diversity index is a measure of the fit between that campuses distribution and the distribution across UC campuses where 1.0 would be an exact replication.)

**Figure 2: Significant Interactions by Campus SES Diversity**
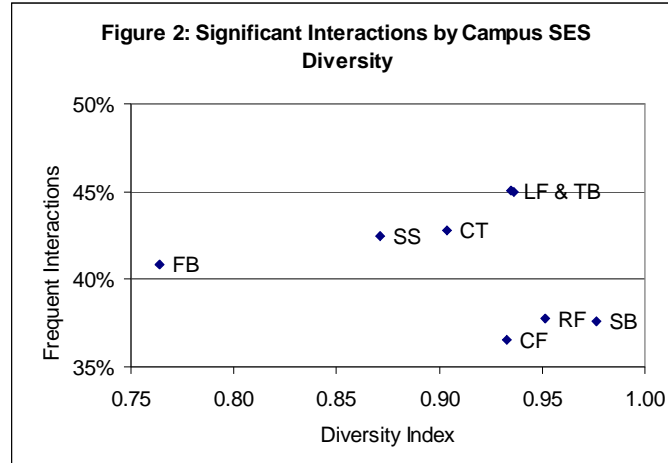
There were two clusters of campuses displayed and one outlier. The first cluster, with high diversity index but less frequent interactions between social classes was comprised of RF, CF and SB campuses. The next cluster has similar diversity index scores but higher levels of interactions: CT, LF, SS and TB. The outlying campus was FB which was very different from the other campuses in terms of SES distribution. More specifically, FB has more working class and fewer upper-middle, professional-middle or wealthy students. The campus clusters cannot be simply explained as resulting from the same pattern of deviation from the UC distribution. For example, it was not the case that campuses within a cluster all had more working-class or more upper-class students.

Immigrant Status or Nationality
Students were assigned to one of four groups: student foreign born (23%), student U.S. native but at least one parent foreign born (37%), student and parents U.S. born but at least one grandparent foreign born, and all three generations native (29%). Across the University of California, the frequency of diversity interactions was highest for students who were foreign born (64%), declined rapidly for native students with at least one foreign born parent (56%), and were very similar for those with a longer U.S. tenure (52% and 53%). Unlike SES where group size seemed to explain interactions, diversity interactions by nationality were more a function of personally being foreign by birth or first generation.

Figure 3: Significant Interactions by Campus Immigrant Diversity
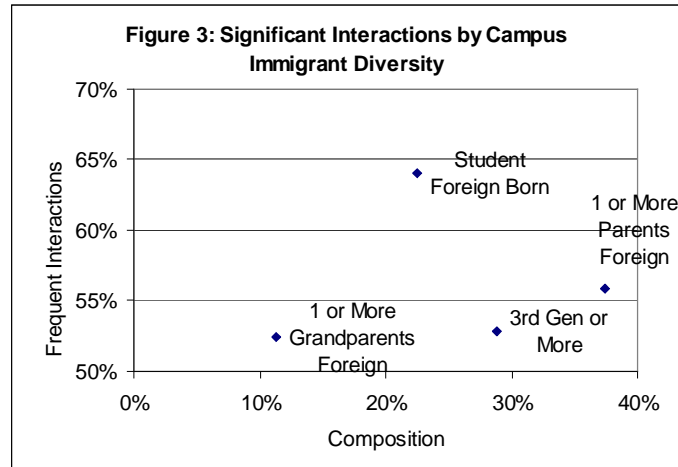
Comparing campus diversity index by frequency of significant interactions[17] showed a cluster between 55% and 65% in frequency with diversity indexes of 75% to 95% and what appeared to be a single outlier was in fact two campuses with equal values. Within the cluster, there appeared to be a negative relationship so that frequency of interaction increased as the diversity index differed from the UC pattern. Within this cluster, from lowest to highest frequency of interactions were SB, RF, CT, CF, LF and FB. The two campuses that differed from the others but shared the same relatively low diversity and interaction scores were TB and SS.

Figure 4: Significant Interactions by Campus Immigrant Diversity
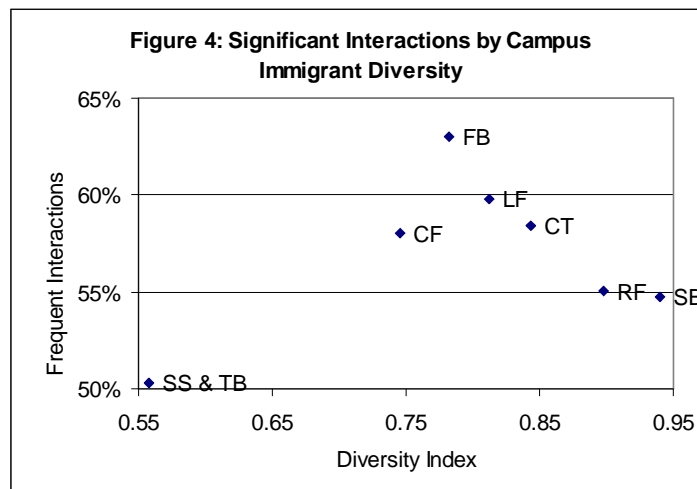
Politics

One of the modules asked students to identify the political party with which they identify and the array of UC students was decidedly Democratic. Over half of UC students are Democrats: 10% strongly preferring Democrats, 22% preferring Democrats, and 29% leaning toward Democrats but Independent. The next largest group was Independent with no preference (20%). Republican support was less with 9% Independent but leaning toward Republicans, 7% preferring Republicans, and 2% strongly preferring Republicans. Given that the distribution was far more heavily weighted toward Democrats and that there were relatively few Republicans, the three Republican options

were combined into one. The base rate overall was 41%—41% often had experiences that increased their understanding of others' political viewpoints.

The graph of group size by frequency of interaction showed that smaller groups were more likely to report diverse interactions. The groups most likely to have diversity interactions were Republican. As was the case with nationality, it may have been the case that greater perceived difference was more important than relative group size in producing situations in which significant interactions occurred.

Figure 5: Significant Interactions by Political Diversity by Size of Affiliated Group
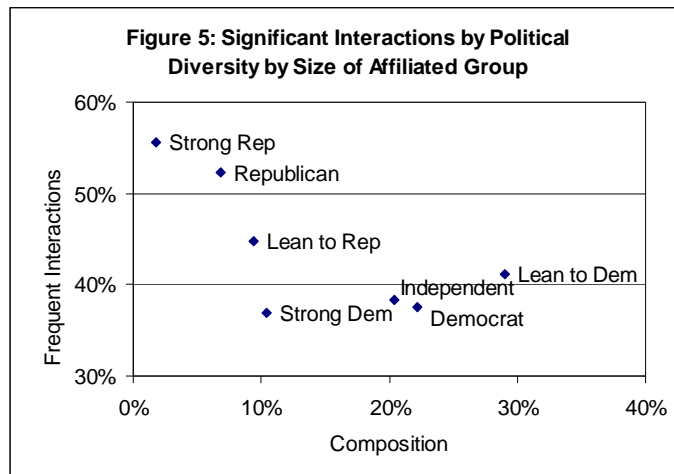
Interactions by campus diversity did not show a clear pattern. A positive relationship between the diversity index and frequency of interactions, where campuses more like the UC System in composition evidenced more interactions, was suggested but was in no way clear. Lower diversity scores might have been associated with less frequent interactions but high diversity scores exhibited both relatively low and high levels of interaction. The most politically active campus, as measured by frequency of interactions, was SS.

Figure 6: Significant Interactions by Campus Political Diversity
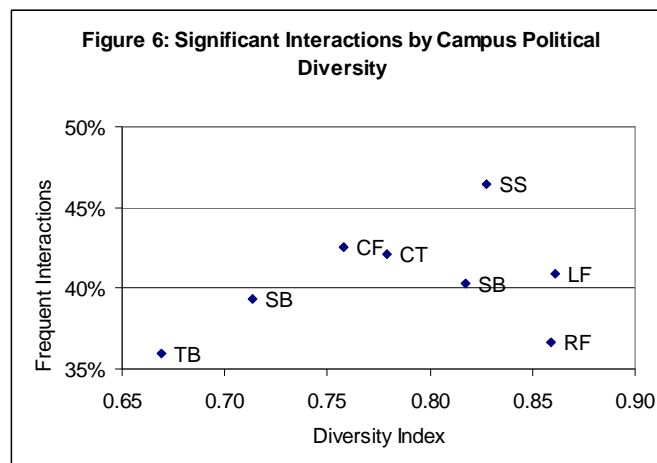
Race/Ethnicity
The University of California collects race/ethnic data at an exceptional level of detail. For the purpose of this analysis, the original detail was collapsed into three larger clusters:

underrepresented minority (17%), Asian (44%), and White (39%). African-American students represented a very small percentage but the almost 1,400 African Americans who completed the questionnaire reported the highest levels of interactions resulting in increased understanding of another's point of view (73%). They were followed closely by the next smaller Hispanic group at 68%.
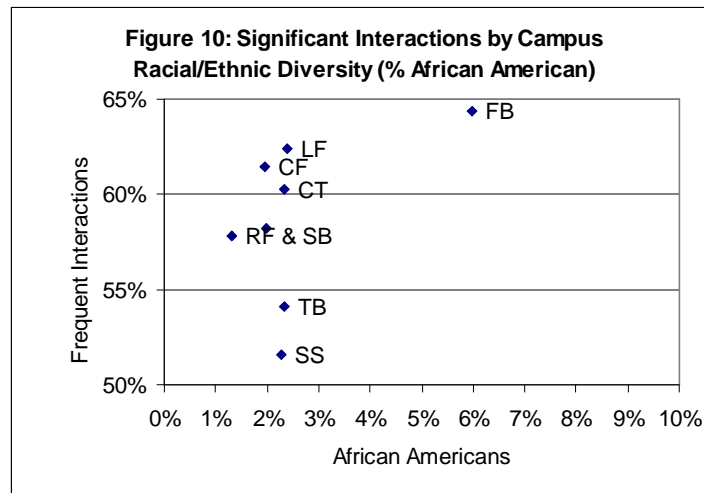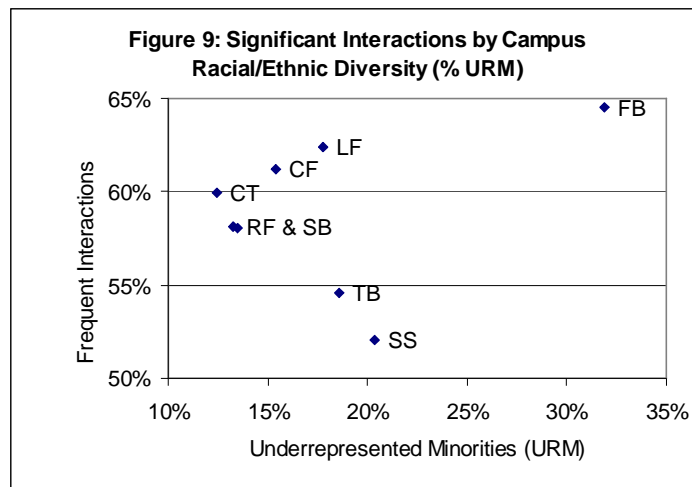

Figure 7: Significant Interactions by Campus Racial/Ethnic Diversity
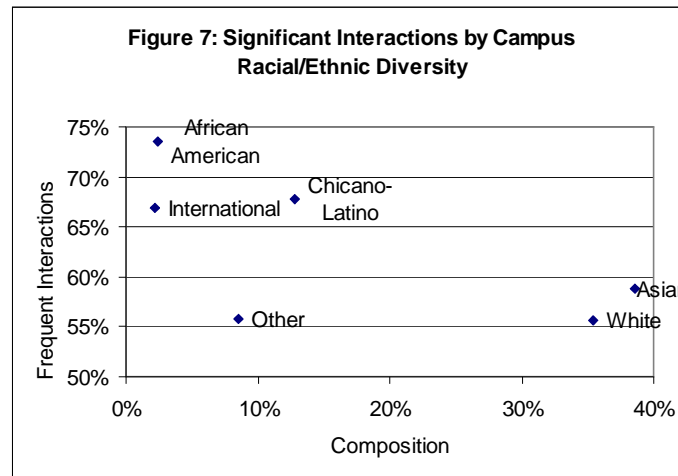
Asian and White students showed a similar level of diversity interaction and were a similar part of the student body. Underrepresented minority students were a much smaller part of the student body but experienced more diversity interactions. This was another case where a mathematical explanation was supported in that students in the smallest group were most likely to interact with students from another group. It should also be noted that the internal standards that students applied when answering this question were probably of a more finely distinguished group placement than the six categories shown here.

Figure 8: Significant Interactions by Campus Racial/Ethnic Diversity
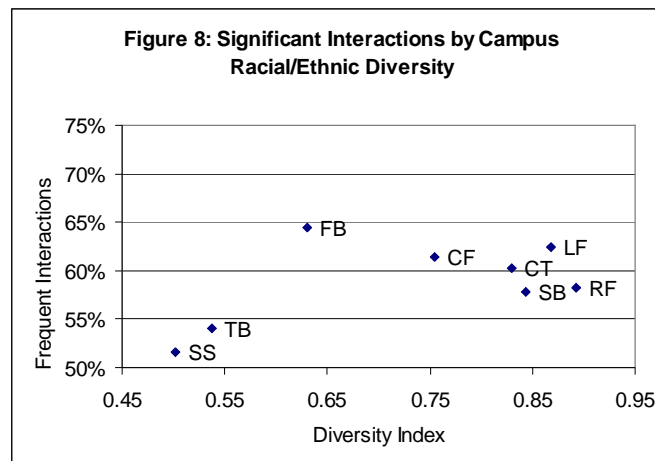
Campus level diversity by frequency of interaction produced an interesting, generally positive association. Those campuses whose composition most closely mirrored the UC composition tended to have higher levels of diversity interactions. The two campuses with lowest levels of interaction were also the most different from the UC distribution: TB

and SS. Both campuses were similar to the UC distribution in terms of underrepresented minority students but had fewer Asian and more White students than the others. This suggests that the racial/ethnic interactions being described by students were not limited to interactions with underrepresented minority students.

The idea that there might be a required minimum threshold, a critical mass, at which significant differences in student interactions occur, can be examined in the following chart. This chart plots campus interactions by percent of responding students who were underrepresented minority students (URM). It is clear that there was no linear association between percent underrepresented minority and interactions for campuses with 10% to 20% URM and the range of values suggest another explanation like academic program differences or campus climate effect. The one outlying campus, FB, had much higher URM and a significantly higher level of interactions. Its presence supports the mathematical argument that the frequency of interaction could be increased by enrolling more underrepresented students. Note that the pattern for percentage African American students was very similar to that for underrepresented minorities.

Figure 9: Significant Interactions by Campus Racial/Ethnic Diversity (% URM)

Figure 10: Significant Interactions by Campus Racial/Ethnic Diversity (% African American)
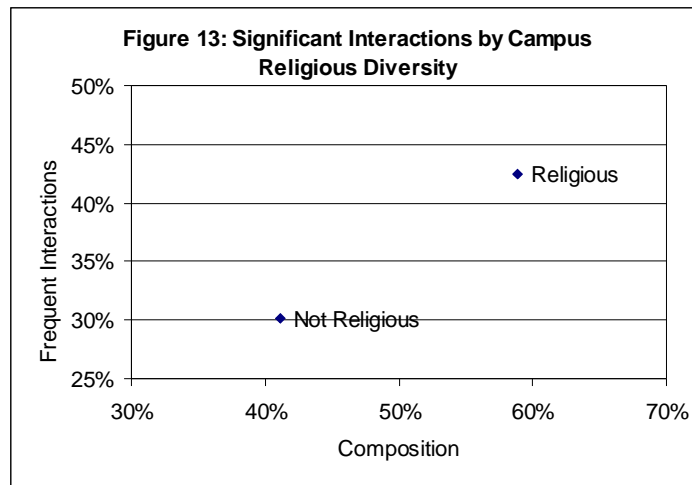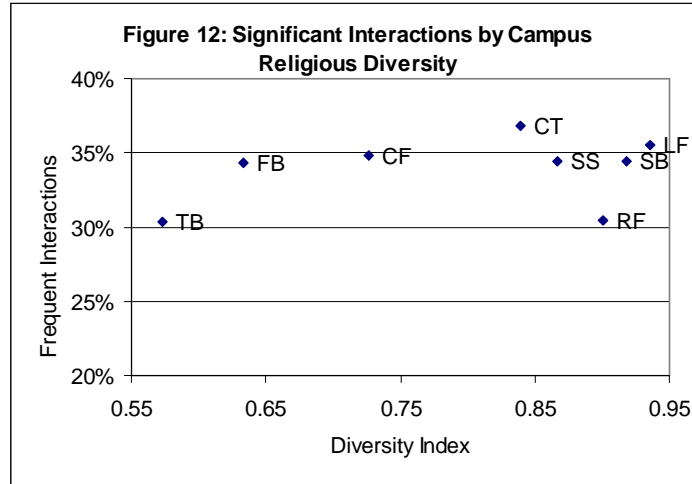
Religion
Students were asked about religious beliefs in one module. That limited analysis to about a 20% sample. Students were offered 20 options from which to choose and no

single religious option was selected by even 20% of responding students. Religious affiliation was therefore clustered into similar religions using seven categories: Protestant, Roman Catholic, Jewish, Eastern Religions, Muslim, Other, and None. The plot of frequency of interaction by relative size of group follows. As was the case with SES, relative size of group appears to have been important. Students whose religion comprised a smaller percentage interacted more frequently. This further supports the idea of random interactions. Random interactions is a desirable outcome because it means that students were not segregating based on religious beliefs.

Figure 11: Significant Interactions by Religious Composition -- Seven Groupings
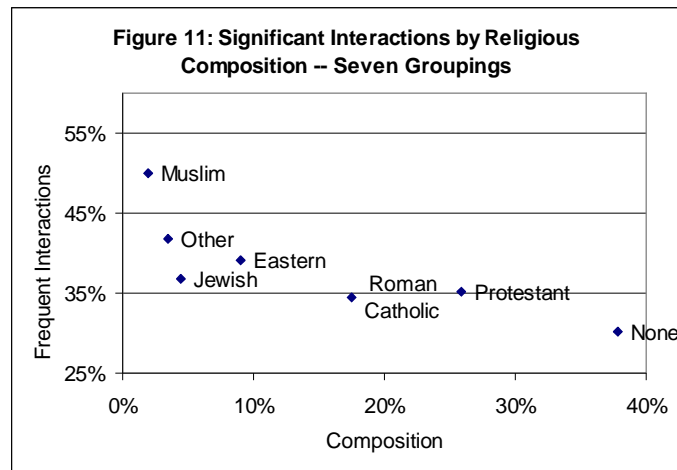
Campus level frequency of interactions resulting in improved understanding of another student by campus diversity index showed a nearly flat distribution. Whether the campus composition was very like the UC average, as was true for LF and SB or very different as was true for TB, the frequency of interaction was a comparable 30-35%.

Combining religious groups that appear superficially similar can be problematic because differences within the clusters have been and continue to be sufficient cause for great strife. It is possible that religious affiliation is so unique that there are no valid larger clusters but it is clear that there is a difference between being religious and having no religions beliefs. For the following graphs, students were placed into one of two groups: Those expressing a religious belief (61%) and those who said that they were not religious (39%).

**Figure 12: Significant Interactions by Campus
Religious Diversity**

**Figure 13: Significant Interactions by Campus
Religious Diversity**

The graph of interaction by composition showed a pattern contrary to the pattern seen more frequently where smaller groups interacted more. In this instance, it would seem that religious students, the larger part of the student population, interacted more about religion than did students who were not religious, but that would be a spurious result. This graph shows that religious students did interact more about religious differences but the interactions could largely be with other religious students (e.g., Protestants with Muslims, Catholics with Jews) not necessarily with nonreligious students.

Summary of the First Section
The single clearest result across the variety of student differences examined was a high level of interaction between students of a type that produces better understanding. Over 40% of students reported often having positive diversity interactions that depended on the other party being different from them for each of the potentially divisive factors. Across the University of California, politics and socioeconomic status were less often the subject of these discussions (41%). Religious differences were the next most frequently discussed (44%) and racial and ethnic differences and nationality were the most frequent (59% and 56% respectively) diversity issues. It was also common for size of

group to matter with smaller groups experiencing diversity interactions more frequently. When diversity interactions were examined as a campus statistic, there was not clear or consistent evidence that composition was associated with frequency of diversity interactions with the possible exception of race/ethnicity.
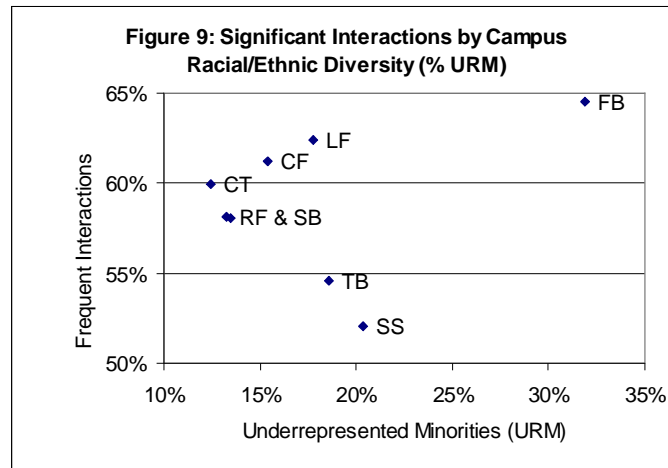

Figure 14: Frequent Diversity Interactions by Type and Campus
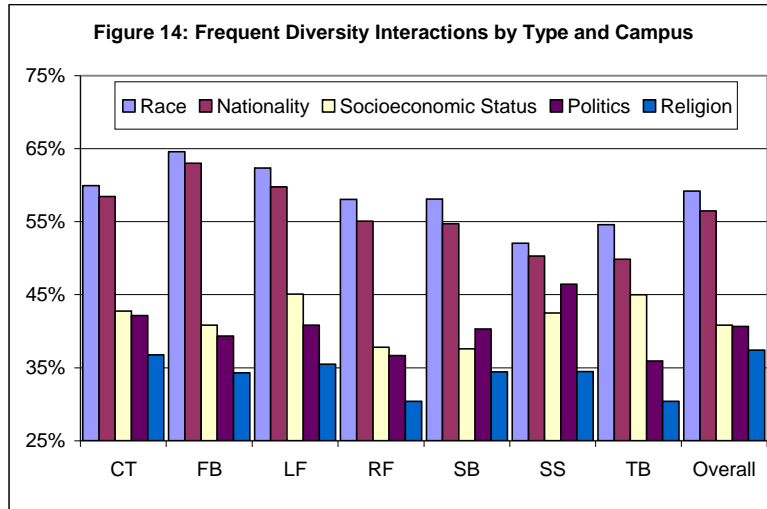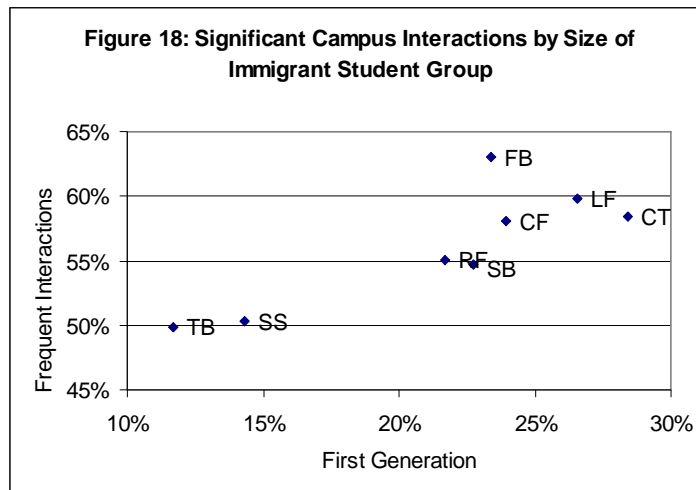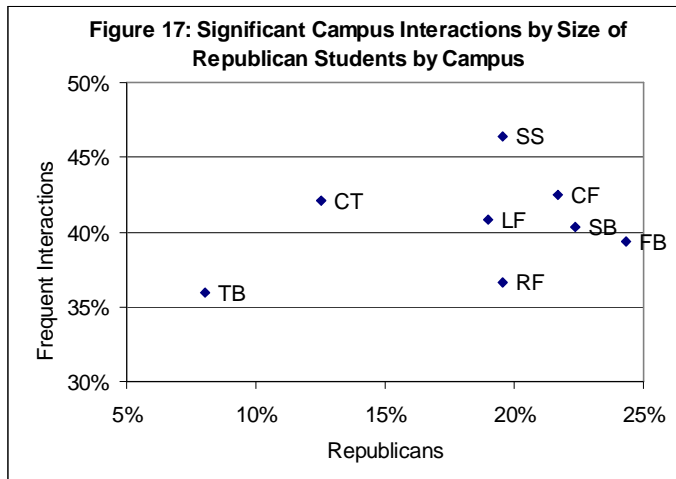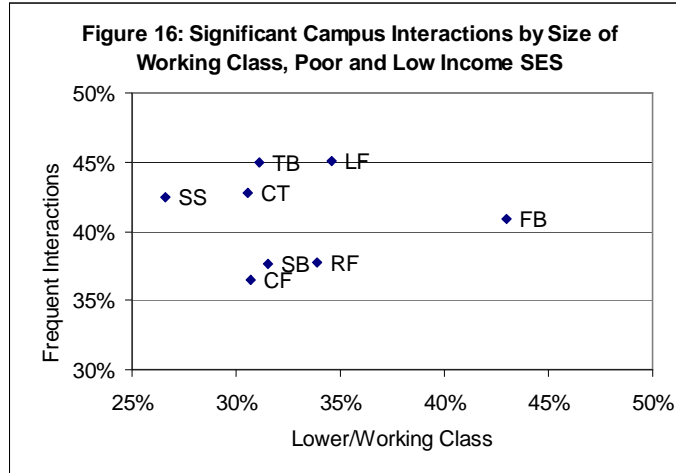
When campuses were compared from the standpoint of relative ranking, ignoring whether the rate of interactions was high or not, a few results might be anticipated but others would probably be surprising. Two campuses, TB and RF, each appeared at the extremes three times over the five areas. TB was relatively low on religious, immigration/nationality and political diversity. RF was relatively low on religious, SES, and political diversity. SS appeared twice among relatively low campuses: race/ethnicity and immigration/nationality. CF and SB each appeared once and both were for SES. Campuses that stood out at the upper end of ranked distributions were FB for immigration/nationality and race/ethnicity, SS for politics, and LF for SES. No campus stood out for religious diversity interactions.

Whether diversity of various characteristics as quantitatively measured here was associated with frequency of significant interactions among students was unclear. The following chart combines the campus level figures for each of the potentially divisive factors into a single plot. There was no clear trend apparent. It does appear to be the case that most campuses were amorphously arrayed except for the presence of relative outliers. The presence of the outliers can suggest a positive, linear trend, but that is not robust. If the two or three lowest diversity, lowest interaction campus data points were removed, then there would be no evidence of positive relationship. It remains possible that the relative size of less typical campus populations could be associated with campus diversity interactions – the critical mass argument.

Figure 15: Diversity Index by Frequent Interactions by Type and Campus
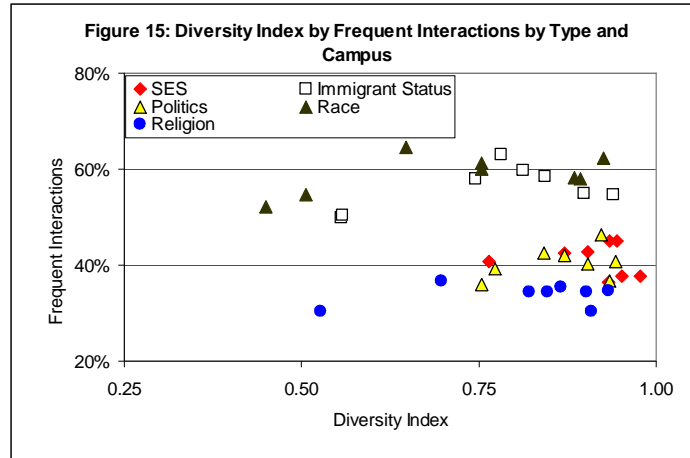
That possibility was examined for underrepresented minority students earlier and is repeated here (Figure 9) along with similar plots for other minorities: low SES, Republican affiliation, and being born in another country. The graphs display campus level interactions by size of "minority" group. In no case was there an unequivocal relationship. The most suggestive were for first-generation and race/ethnicity and the most likely linear relationship was percent first-generation. As noted earlier, it is possible that percent underrepresented minority showed a threshold effect but given the nature of these data, it might be a naturally occurring outlying case.

Figure 9: Significant Interactions by Campus Racial/Ethnic Diversity (% URM)

Figure 16: Significant Campus Interactions by Size of Working Class, Poor and Low Income SES

Figure 17: Significant Campus Interactions by Size of Republican Students by Campus

Figure 18: Significant Campus Interactions by Size of Immigrant Student Group

E.   Second Question: Is campus composition associated with students' sense of belonging?
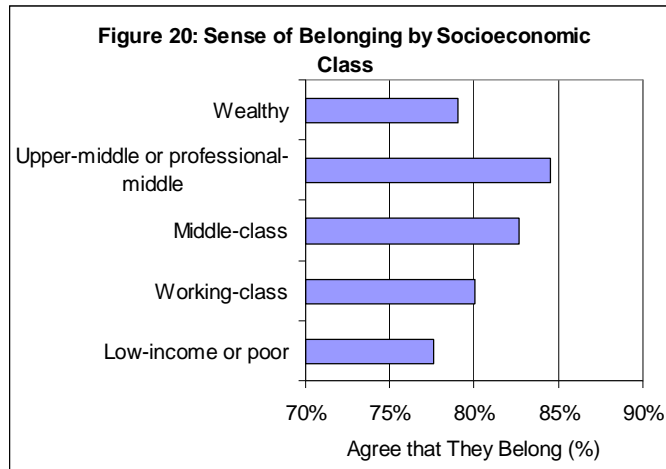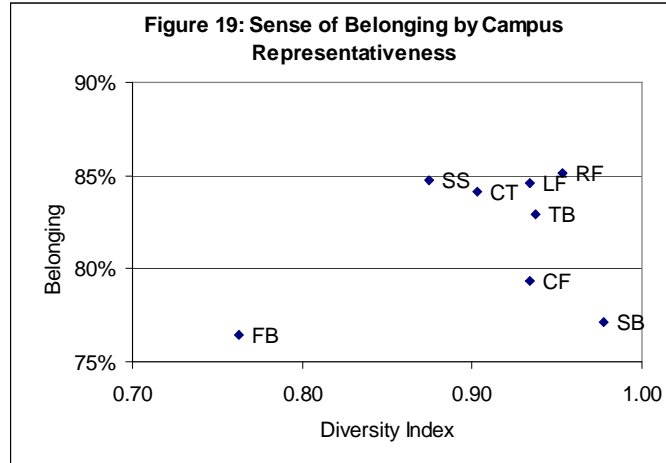
As stated in the introduction, this paper assumes that an environment where students frequently increase understanding of others is a more important outcome than an environment where everyone is comfortable and feels that they belong. It is further assumed that interchange among differing parties very likely causes participants to question whether they do belong. In spite of that possibility, it is important that the campus environment remain such that differences are respectfully and peacefully considered and that students' perception of belonging should be very high. In other words, positive diversity outcomes should not come at the expense of student attachment.

As the following results are considered, bear in mind that campus base rates differed. There were two clusters of campuses by sense of belonging ratings. One cluster had relatively higher scores and was comprised of RF, LF, SS, CT and TB. For this cluster, the percentage of students agreeing that they belonged ranged from 85% to 83%. A second cluster was comprised of the CF, SB, and FB campuses. Belonging scores in this cluster ranged from 79% to 76%. Whether belonging is associated with the variables studied here or not is the crux of this analysis.
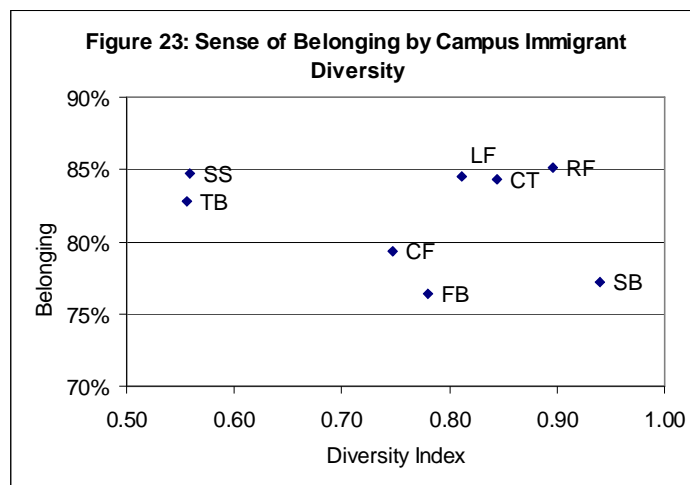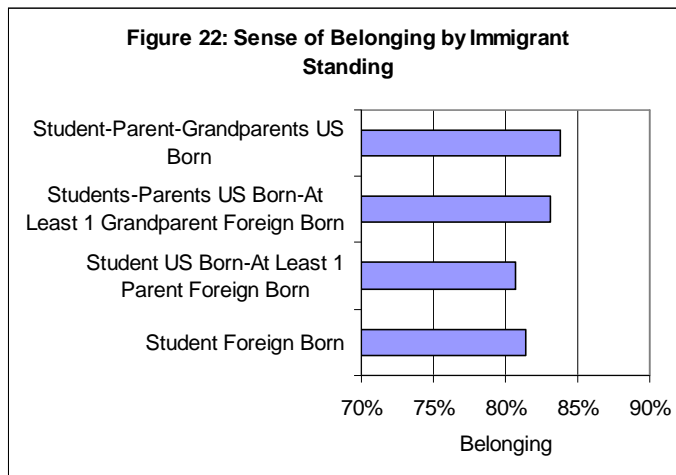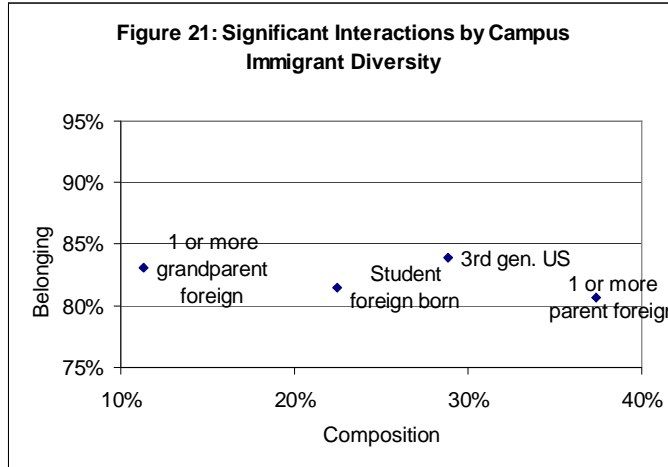
SES
The next chart employed the diversity index from the first section of the report but associated it with the campus-level belonging statistic. It was clear that most campuses were closely clustered and that one was something of an outlier both in terms of diversity index and belonging. FB was the outlier, and it had a belonging rating of 76% and a diversity index of 0.76. When SES composition at FB was examined in more detail, it was clear that FB had a larger percentage of low income or poor and a larger percentage of working class students than most campuses. It was possible that the lower campus rating reflected this difference in composition. Sense of belonging by SES class is shown in the second graph and does support the explanation that FB's campus rating reflected its difference in composition. However, when the data were examined within each campus, FB showed a uniformly lower level of sense of belonging with little difference by SES except that the small group of wealthy students gave the lowest ratings of belonging.

It is also interesting to note that wealthy students provided lower ratings of belonging. That might reflect group size as this was a very small group overall or at any campus (2% or less). Within campus differences showed that the difference between wealthy student ratings and the campus profile was greatest at TB. TB had a very high level of belonging overall, 83%, but a relatively low level for wealthy students, 70%. It should be noted that this might be a common result in higher education but that the difference is frequently masked by combining wealthy and upper-middle class students. UCUES's large scale helps to uncover new and unexpected findings.

Figure 19: Sense of Belonging by Campus Representativeness

Figure 20: Sense of Belonging by Socioeconomic Class


Immigrant Status

Across the University of California, there was little difference in sense of belonging by immigrant status/nationality. Whether displayed considering size of each group (Fig. 21) or not (Fig. 22) made little difference because the range of attachment scores was a very narrow, 81% to 84%.

Figure 21: Significant Interactions by Campus Immigrant Diversity

Figure 22: Sense of Belonging by Immigrant Standing

Figure 23: Sense of Belonging by Campus Immigrant Diversity

Campus immigrant diversity does not appear to be related to campus-level sense of belonging as the pattern across campuses is amorphous.

Politics
Across the UC System there was no pattern associating political affiliation and sense of belonging. Whether students identified themselves with a large or small political group, their belonging rating fell within a very narrow band.

Figure 24: Sense of Belonging by Size of Political Group
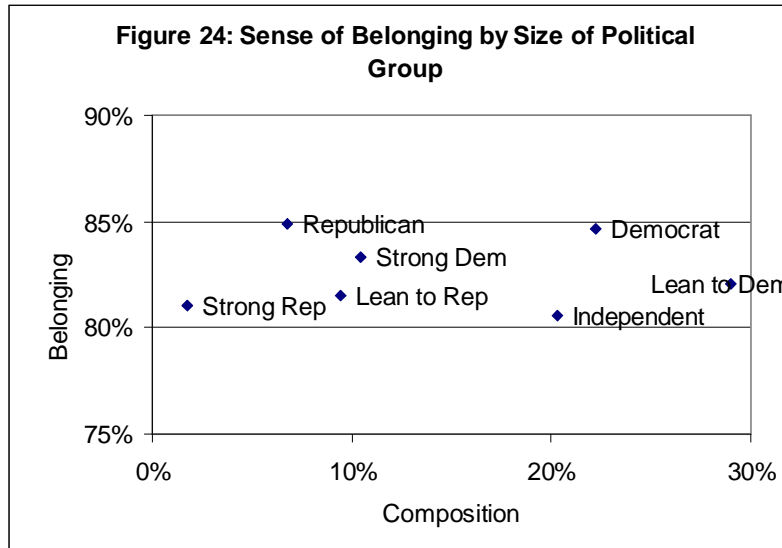
Even though the above graphs would suggest no relationship between diversity and belonging because the relationship between party affiliation and belonging was flat, there was a positive relationship between diversity and belonging (intercept of .77 and slope of .3). Overall campus sense of belonging was higher as student composition mirrored the UC average.

Figure 25: Sense of Belonging by Political Grouping

Figure 26: Sense of Belonging by Political Diversity: By Campus
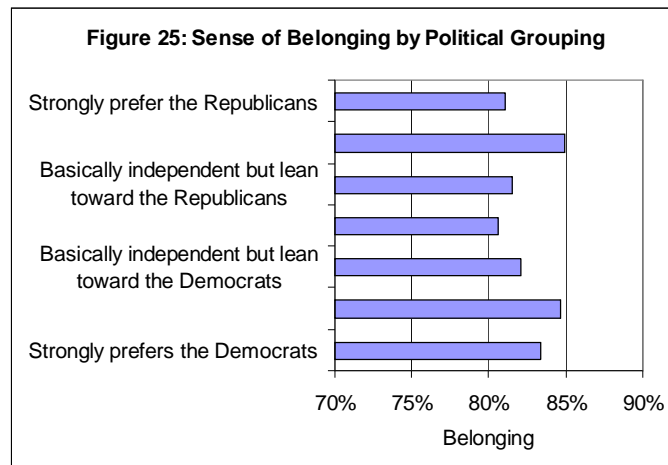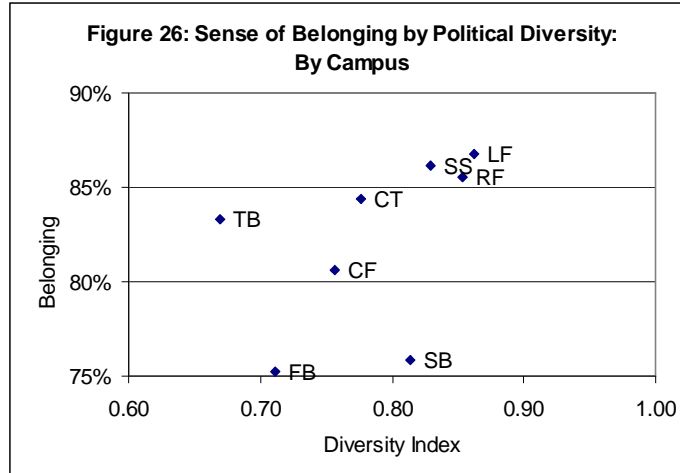
Race/Ethnicity
The largest difference in sense of belonging scores was observed for race/ethnicity due to the fact that African-American students had lower belonging scores (74% versus 82% overall). All other group scores were similar to each other except that White students reported somewhat higher levels of belonging. White students were one of the larger groups and African American students were one of the smallest groups and, therefore, the overall distribution shows that group size may be an important factor in sense of belonging. However, if a relationship existed, it was largely due to the African American data point. Without that data point, little if any relationship would have been apparent.

Figure 27: Sense of Belonging by Racial/Ethnic Class

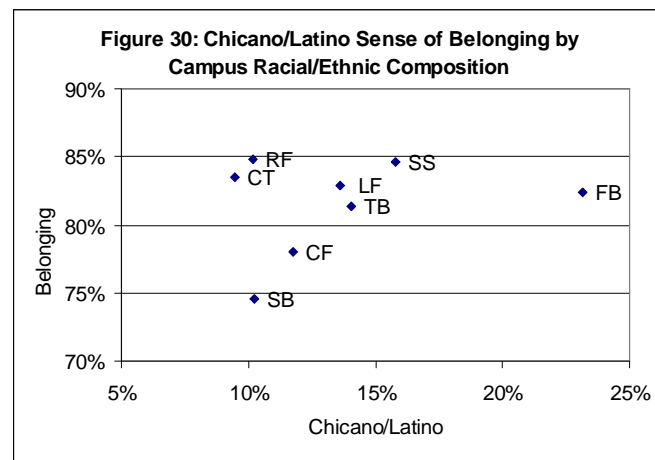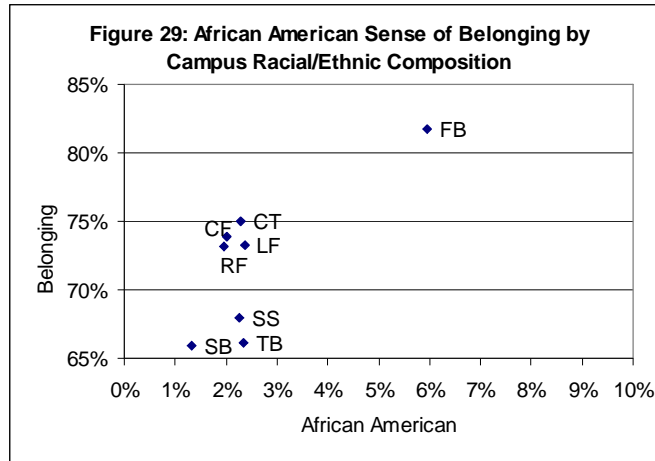**Figure 28: Sense of Belonging by Size of Racial/Ethnic Group**
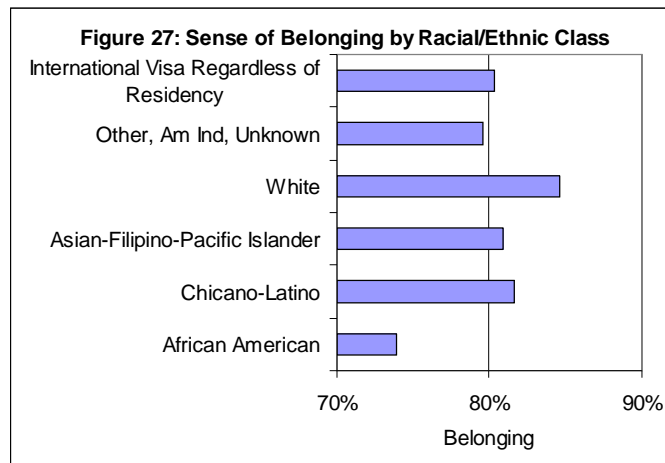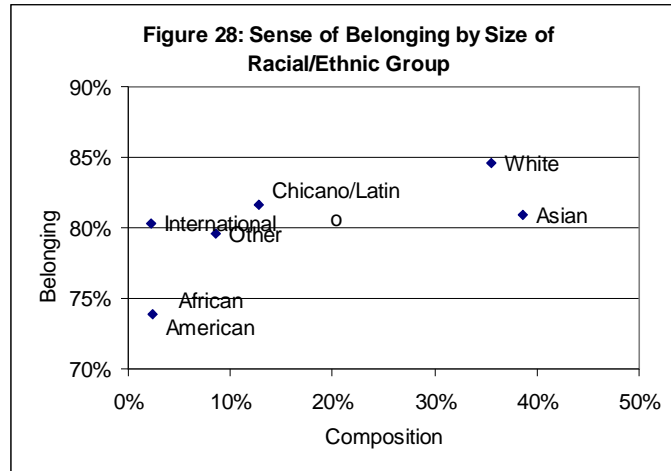
When we look at patterns within campuses, it was not the case that African-American students were always the lowest group for belonging ratings. It was also not the case that underrepresented students were always the lowest group. FB presents a very interesting contrast. At FB the highest rating groups were underrepresented students, both African-American and Hispanic were higher than Asian and White. With this exception noted, it was true that African-American students rated sense of belonging the lowest or as low as any other group at other campuses.

Sense of belonging ratings by African Americans at FB support a critical mass argument because African Americans were a larger part of the FB student population and reported higher sense of belonging scores. Sense of belonging scores were much lower at the other campuses and African-American students were a smaller part of the student body at other campuses. There could well be other explanations, including campus initiatives, but this result is intriguing and suggests a lower, more attainable critical mass percentage than the 10-20% offered in *Grutter v. Bollinger*. The FB percentage was about 6%.

A similar plot of Chicano-Latino students did not show an instance where there was a sharp increase in sense of belonging associated with relative underrepresented minority group size. It is unclear whether a linear relationship between proportion Chicano-Latino and belonging was evident but it is clear that there was no threshold for the Chicano-Latino distribution.

Figure 29: African American Sense of Belonging by Campus Racial/Ethnic Composition

Figure 30: Chicano/Latino Sense of Belonging by Campus Racial/Ethnic Composition

Religion
The number of religiously affiliated students was too small in many religions at the campus level to support most statistical comparisons of belonging. Therefore students were sorted into seven groups: Roman Catholic, Protestant, Eastern, None, Muslim, Jewish, and Other. The distribution of belonging by relative composition for the seven groups showed that the two smallest religious groups, Muslim and Jewish, had higher belonging scores. All others fell within a narrow five percent range.

Figure 31: Sense of Belonging by Religion -- Seven Group
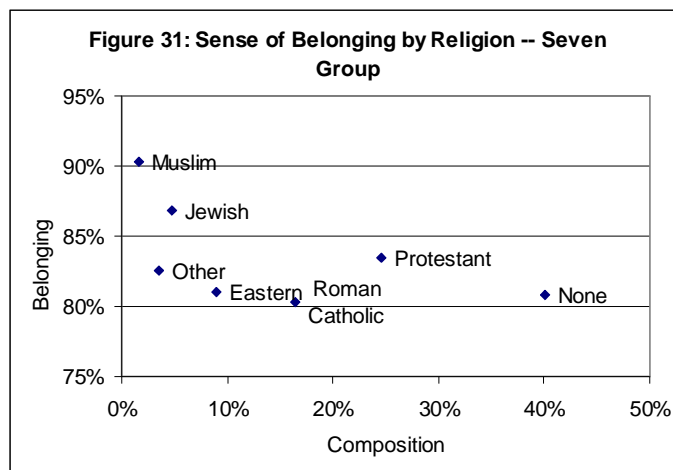
When the various religions were combined to compare religious and nonreligious students, it was clear that religious students had higher average belonging scores and were, collectively, a larger part of the University of California student population. Sense of belonging scores by campus for religious or nonreligious students reflected overall campus belonging satisfaction scores.

Figure 32: Sense of Belonging by Racial/Ethnic Class

Figure 33: Sense of Belonging by Campus Religious Diversity: Clustered

Figure 34: Sense of Belonging by Campus Religious Diversity: Clustered
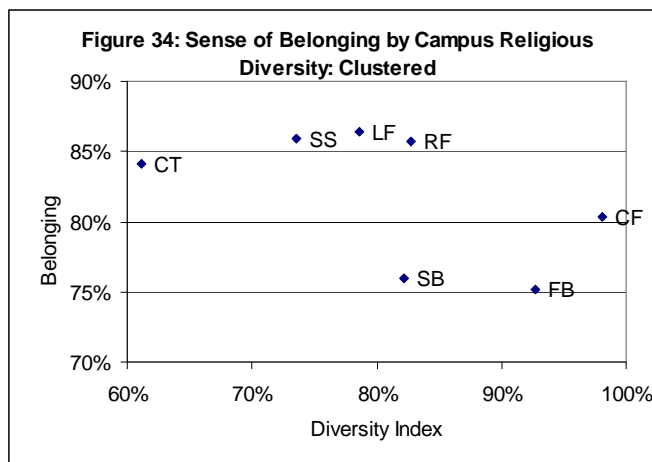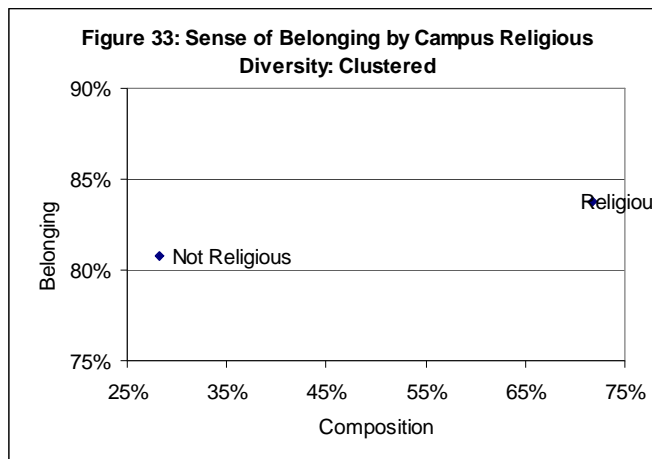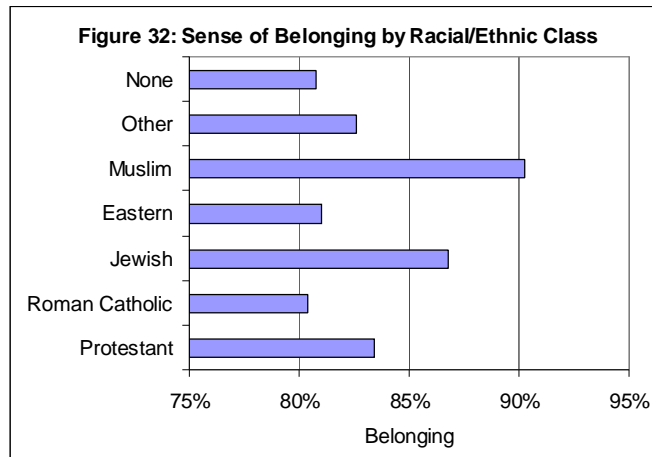
Summary of the Second Section
Ratings of sense of belonging were typically lower for African Americans, low income or poor, and were marginally lower for wealthy and working class students. They were also higher for Muslim and Jewish students and for religious students overall. The most important observation from the second section of the report was that none of these singular variables sufficiently explained the base rate differences. There were campus differences that very likely reflected "campus climate." This is an area of research that should be pursued because it could identify malleable campus practices and conditions that encourage attachment.

CF
CF was like the University in sense of belonging by religion, political beliefs, and immigrant status/nationality. Differences by race/ethnicity were smaller at CF but the pattern was like the University overall. Wealthy students rated belonging lower.

CT
Sense of belonging was somewhat lower for low-income and poor students, African-American students, and somewhat higher for Democrats. The campus reflected the University patterns for religion and immigrant status/nationality.

FB
Sense of belonging was rated lower at FB overall. FB ratings followed system patterns for religion and there were no differences by immigrant status/nationality and political affiliation. Contrary to system patterns, underrepresented minority students rated sense of belonging higher and Asian students lower. Wealthy students rated sense of belonging lower at FB.

LF
There were no differences at LF in sense of belonging ratings by immigrant status/nationality and political affiliation. African Americans rated belonging lower as did low income and poor students. LF was like the University in religious affiliation.

RF
Sense of belonging was lower for low-income and poor students, African-American students and it was like the University on immigrant status/nationality. There was no difference associated with religious beliefs and that was uncommon. Typically, religious students rated belonging higher. Republican students rated sense of belonging higher even though they were only about 20% of students, slightly more than the University wide proportion.

Belonging (Deviations by Campuses from University Patterns)

	SES	Immigrant Status	Politics	Race/ Ethnicity	Religion
CF	Wealthy much lower				
CT			Democrats higher		

	Wealthy	Republican	Minority/ African American	Differential
FB	Wealthy much lower		Minority/ African American higher	Differential much larger and lower overall
LF				
RF				
SB				
SS			African American much lower	
TB	Wealthy much lower	Republican much lower	African American much lower	

SB
Students rated sense of belonging like the system overall for political and religious affiliation and there were not differences by immigrant status/nationality. African American students rated belonging lower, as did low income and poor students and wealthy students.

SS
Sense of belonging ratings were like the University wide patterns for religion, politics, and immigrant status/nationality. Both lower income and poor, and working class students rated belonging lower and the difference between African American students and others was even larger at SS (also TB).

TB
Student ratings of sense of belonging at TB showed no difference by religion clusters and immigrant status/nationality. Wealthy and low income or poor students rated belonging lower. Sense of belonging was markedly lower for two groups, African Americans and those identifying with the Republican Party. The difference by political party was atypically large.

G.   Concluding Remarks

When viewed from the perspective of higher education nationally, the diversity among the University of California student population is striking. The University is richly and remarkably diverse by most standards. This is especially true for immigrant status/nationality where the University has an atypically large number of first-generation Americans. The University does suffer from a proportional deficit in that it enrolls fewer African Americans and Hispanics than would be expected from population demographics

and other deficits are unclear because the comparable population characteristics for young Californians are less clearly established. However, the fact remains that the student body is very diverse.

The paper began by empirically examining the legal concepts compelling interest and critical mass. The paper then went on to compare sense of belonging ratings by various demographic groupings to support the diversity findings from the first section and to generally scan campus environment. UCUES provided a unique opportunity to pursue these issues because it involves such a large number of UC students and uses common forms across similar campuses.

From the first section we learned that positive diversity interactions were very common among UC students. The majority often found their understanding of the perspectives of others becoming more developed and that was especially true for race/ethnicity and immigrant status/nationality. It was also frequently the case for social class, political affiliation, and religion. About 40% or more students reported frequent diversity interactions in each area.

Overall, there was not a clear association between interaction and size of demographic group or campus composition although there was a tendency for students in smaller demographic groups to interact more often. In sum, these results clearly support a compelling interest argument – it is critical that the University enroll students possessing differences. A stimulating environment of interchange among students that will help them succeed after college requires that the student body exhibit diversity in areas important to society. If students are to function effectively in a world with immigrant, political, religious, social class, and racial/ethnic differences, then the student body should include students with a variety of these characteristics.

From the second section we found a few interesting general patterns but more important instances of exceptions to those patterns. We found that lower income and poor students frequently felt less attached but that wealthy students occasionally did too. We found little relationship between political affiliation and sense of belonging overall but campuses where Democrats rated belonging higher, Republicans rated belonging higher, and where Republicans rated belonging much lower. The campus-level variance is especially useful because it shows that change is possible. In some cases, the unusual patterns might be cause for campus attention as we enter an election cycle. The most pervasive problem found was lower ratings of belonging by African Americans overall and a couple of campuses where the ratings by African Americans were much lower. However, even among the consistently low ratings by African Americans there was one campus where ratings were actually higher than the campus average, FB.

Was a critical mass argument supported and, if so, what is the size of a critical mass? Those are more difficult questions but evidence from African American student responses suggest that there might be a minimum critical mass and, if so, that critical mass could be as small as 5 to 10% for African Americans attending UC campuses. African American students at FB rated belonging as high as the UC average and higher than the overall student body at FB. If these findings can be replicated elsewhere a 6-10% threshold would be a very useful result because it is a more attainable proportion. This result suggests that the UC composition of African American students should at least be tripled and doing so could be legally defended based on the results here and

the University's typically unsuccessful effort to achieve a higher African American student proportion through comprehensive review.

There were few other examples of very low proportions that might be used to further examine this relatively small critical mass figure. Jews, Muslims and "Other" religious students were less than 5% of the population but rated belonging higher. International students, wealthy students and students who strongly supported Republicans were less than 5% of the population and rated belonging only moderately lower than the campus averages. In sum, these patterns do not confirm the critical mass observation for African Americans, but then these are differences that are less easily identified in casual contact. The other variable that tended to show similarities to race/ethnicity and was somewhat easy to perceive in casual contact was immigrant status, but first-generation students were a much larger proportion of the student body at the University of California and at 23% would have likely exceeded a critical mass threshold.

Cautions
Among the limitations of this study are the reliance on single variable analyses and questionable operational definitions of dependent terms. The student characteristics examined do not exist in isolation. Follow-up study should consider multivariate solutions and should use more complete measures of interaction and sense of belonging. Regarding dependent terms, frequency of interaction and agreement with a statement saying that the student belonged at a campus are reasonable but very incomplete measures.

Additional study might determine more accurate measures of the content these items hoped to reflect. And last, there is much work to be done in examining patterns within campuses. Much variance remains that suggests important campus effects – that two campuses with identical profiles might still differ in interaction and belonging because of campus climate factors unique to each institution. In sum, this first examination was admittedly crude but still able to raise important questions and add useful information to the discussion. It also provides sufficient evidence to call for a more thorough study.

NOTES

[1] Currently serving as president of Columbia University and formerly president of the University of Michigan during *Gratz v. Bollinger* and *Grutter v. Bollinger* (2003)

[2] Bollinger, L. C. (2007). Why Diversity Matters. Point of View essay. *The Chronicle of Higher Education*. June 1, 2007.

[3] Consolidated brief of Lt. Gen. Julius W. Becton, Jr., Adm. Dennis Blair, Maj. Gen. Charles Bolden, Hon. James M. Cannon, Lt. Gen. Daniel W. Christman, Gen. Wesley K. Clark, Sen. Max Cleland, Adm. Archie Clemins, Hon. William Cohen, Adm. William J. Crowe, Gen. Ronald R. Fogleman, Lt. Gen. Howard D. Graves, Gen. Joseph P. Hoar, Sen. Robert J. Kerrey et al. as *amici curiae* in support of respondents. *Grutter v. Bollinger, et al*. and *Gratz and Hamacher v. Bollinger, et al.*, No. 02-241,02-516.

[4] Brief of the General Motors Corporation as *amici curiae* in support of respondents. *Grutter v. Bollinger, et al*. and *Gratz and Hamacher v. Bollinger, et al.*, No. 02-241,02-516.

[5] Nelson Laird, T.F.N., Shoup, R., & Kuh, G.D. (2005). "Deep Learning and College Outcomes: Do Fields of Study Differ?" Paper presented at the Annual Conference of the Association for Institutional Research, San Diego.

[6] Nelson Laird, T.F.N., Schwarz, M.J., Kuh, G.D., Shoup, R. (2006). "Disciplinary Differences in Faculty Members Emphasis on Deep Approaches to Learning." Paper presented at the Annual Forum of the Association for Institutional Research, May, 2006, Chicago, IL.

[7] Gruin, P., Dey, L., Hurtado, S., Gurin, G. (2002) Diversity and Higher Education: Theory and Impact on Educational Outcomes. *Harvard Educational Review*, 71(3), 330-366.

[8] Ibid

[9] Chatman, Steve (2007). *Institutional Versus Academic Discipline Measures of Student Experience: A Matter of Relative Validity.* CSHE.8.07, University of California, Berkeley.

[10] Gurin, P., Nagda, B., Lopez, G. (2004). The Benefits of Diversity in Education for Democratic Citizenship. *Journal of Social Issues.* 60(1), 17-34.

[11] No. 05-908. Decided June 28, 2007.

[12] Student Experience in the Research University (SERU) is a collaborative study based at the Center for Studies in Higher Education (CSHE) at UC Berkeley and focused on developing new types of data and innovative policy relevant scholarly analyses on the academic and civic experience of students at major research universities.

[13] University of California Undergraduate Experience Survey (UCUES) is the principal data collection activity of the SERU project. It is an internet-based census survey of the University of California undergraduate student body. In 2006, a 38% response rate was achieved systemwide with every campus reaching at least 32%.

[14] The administered item stated used preference instead of orientation but was changed in 2007. The two items appear to produce equivalent results.

[15] Responding student was asked to select among six options: never, rarely, occasionally, somewhat often, often or very often. For this analysis, the three "often" response options of somewhat often, often or very often were combined.

[16] A key to campus identification is available through the institutional research office of each campus.

[17] Significant interactions were the student self-rating of frequency of conversations with other students that resulted in the student having an increased depth of understanding. It is the sum of three frequencies: somewhat often, often or very often.