

1 Findings from a combination of factor and cluster analyses offer new insights into how student attributes interact with academic discipline in shaping perceptions of campus climate and diversity.

Working with Large-Scale Climate Surveys: Reducing Data Complexity to Gain New Insights

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Although there is agreement that graduating students should be able to function effectively in an increasingly diverse society, there is reasonable difference of opinion regarding how that goal should be accomplished and how progress should be measured. The most pervasive and appealing conventional wisdom is that positive attitudes and behaviors in groups will be enhanced and negative prejudice lessened by social contact in a shared environment where the groups have equal status, cooperate on a common task, and perceive that they are working toward a common goal, and where the contact is sanctioned by institutional authorities (Allport, 1954). A college environment should be close to ideal. Unfortunately, effect sizes tend to be rather small. For example, Pettigrew and Tropp's meta-analysis of intergroup contact theory (2006) concluded that positive but small effects were the norm, as did Sidanius, Levin, van Laar, and Sears's longitudinal multimethod study of UCLA freshmen. Sidanius and colleagues (2008) concluded:

We found, however, that the students were changed rather little in their ethnic and racial orientations by the college experience. . . we would simply point to two recurrent findings. The first is the strong continuity of such attitudes as racial prejudice and ethnic identities across the several waves of our study and years at college for the students. . . . The second finding is that

diversity experiences on campus, whether in ethnic organization membership or interethnic friends, roommates, and dating partners, have quite modest effects [pp. 322–333].

This chapter asserts that one problem with extant research is oversimplification of a complex issue; the chapter calls attention to two types of oversimplification. A serious one has been omission of academic program of study, as if it either had no effect on student perception and development skills or was a randomly distributed variable. Believing that academic study had no differential effect on perception of campus climate or diversity skills would call into question the teaching and learning process that is the core of formal education. Believing that academic program of study is randomly distributed over demographic groups and that there is no relationship between student interests and academic major is similarly untenable (Beyer, Gillmore, and Fisher, 2007; Biglan, 1973a and 1973b; Brint, Cantwell, and Hanneman, 2008; Donald, 2002; Smart, Feldman, and Ethington, 2004). Research would be expected to show that academic discipline is a remarkably important variable in measuring campus climate and growth in diversity skills, especially at large research universities. The Student Experience in the Research University (SERU) Project's 2008 University of California Undergraduate Experience Survey (UCUES) administration presents an excellent opportunity to begin that examination.

On the one hand, several factors have been examined for contribution to diversity and generally found to be important. These factors are institutional or structural elements (for example, urbanicity, public, size, degree level) (Hurtado, 1992; Pascarella and others, 1996), individual differences prior to enrollment (such as personal demographic, background characteristics), experiences while attending or informal diversity interactions (Chatman, 2008; Gurin, 1999; Hurtado, Dey, Gurin, and Gurin, 2003), and experience with a special program offering (Gurin, Lehman, Lewis, and Dey, 2004).

On the other hand, the operational definition of perception of campus climate and self-assessment of diversity skills has been determinative. Especially in addressing the question of whether diversity of enrollment and higher rate of informal interaction are associated with openness to diversity and positive perceptions of campus environment, results appear to reflect the instrument and methodology. CIRP's longitudinal studies show positive outcomes, and cross-sectional NSSE studies show negative outcomes (Pike and Kuh, 2005, 2006).

Method

Clearly, what is needed to adequately examine an issue of this complexity is a research design that is sufficiently inclusive and comprehensive. The research data file from the 2008 administration of UCUES presents a unique

opportunity to begin examination of this issue, with fewer oversimplifications and none that are formed without an empirical base. The core components of UCUES are measures of interpersonal and diversity skills, campus climate, overall satisfaction and inclusion, and individual characteristics (political beliefs, religious beliefs, social class, family income, gender, race and ethnicity, sexual orientation). These are supplemented by operational variables (for example, program of study) from university records. These data are available for more than sixty thousand respondents and will permit a powerful examination of these relationships at large public universities. Randomly assigned UCUES modules yield additional data about frequency of interactions and occurrences of negative or stereotypic views about race or ethnicity, gender or sexual identity, political beliefs or affiliations, religion, sexual orientation, socioeconomic status, immigrant background, and disabilities (physical, psychological, or learning). The modules were addressed to samples of students but should support even complex models on this scale (more than ten thousand). The eight large undergraduate campuses of the University of California offer structural diversity variance, albeit among similarly selective institutions in a single state.

The conceptual model follows that used by Chang (2001), Hu and Kuh (2003), and Pike and Kuh (2006). The model describes perceived campus environment as a direct result of diversity interactions, structural diversity, and institutional characteristics; and an indirect result of structural diversity and institutional characteristics through diversity interactions. The model examines the various dimensions of diversity independently and collectively in recognition that diversity is measured by more than race and ethnicity.

In an unusual twist, this chapter offers no statistical results by student groupings. Instead, it identifies where differences exist among students in relationship to issues. For example, if family income were associated with ratings of respect for students, then it would be identified as a factor that should be considered in studying respect for students. This chapter does not take the usual next step of presenting or trying to establish mean differences in ratings of student respect by family income. Similarly, if students of different political affiliations do not rate respect for students differently, then it is a factor that can be ignored. The fundamental contribution of this chapter is to encourage movement away from knee-jerk selective assumptions about diversity and campus climate with a focus on relative group scores, and toward empirically based analysis.

Analysis occurs in three sequential steps. The first step establishes a factor structure for the Student Development module of UCUES 2008 to reduce consideration of many items to fewer factor scores. These are added to previously established factor scores for core items (Chatman, 2007a). The second step uses cluster analysis to establish groupings within demographic dimensions to reduce complexity on the basis of the full array of factor scores resulting from the prior step. For example, if mathematics and

computer science students respond similarly across the twenty factor scores, then mathematics and computer science students can be combined for the third step. In the third step, the relationship between clusters and individual factors is examined to determine which student characteristics are associated with each factor score. For example, if field of study is unimportant in examining Campus Values, then field of study can be ignored when examining Campus Values. The three steps are designed to reduce item complexity through factor analysis, shorten the student characteristic variable set through cluster analysis, and simplify study design complexity in examining specific dimensions of campus climate and diversity. The reductions are empirically based.

Step One: Factor Analysis of the Student Development Module. The factor analysis strategy followed that used to establish factors for the UCUES 2006 core data elements (Chatman, 2007a). It employed varimax rotation to establish orthogonal principal components followed by promax rotation within principal components to establish subfactor scores. Item placements were guided by loadings with a rarely used 0.4 cutoff. The decision to employ a 0.4 cutoff was the consensus judgment of a team of institutional researchers, faculty, and graduate students gathered for a day at the UC Riverside campus to do the factor analysis. The standard reflected the observed loadings as well as the groups' subjective judgment about item fit. All analyses relied on responses by upper-division students evaluating majors who were randomly assigned to the Student Development module. For this module, many item scores were reversed prior to analysis to create a preferred positive scale.

The best principal component fit was a three-factor solution with reliability coefficients of 0.95, 0.92, and 0.85 for factors subsequently named Faculty and Staff Expressed Prejudice (DVF1), Campus Climate and Student Expressions of Prejudice (DVF2), and Interpersonal Skills and Sensitivities (DVF3; Table 1.1).

Faculty and Staff Expressed Prejudice (DVF1) comprised two item series asking the frequency with which the student had heard teaching faculty or instructors and nonteaching staff or administrators express negative or stereotypical views about any of eight characteristics: race or ethnicity; gender or sexual identity; political beliefs or affiliations; religion; sexual orientation; socioeconomic status; immigrant background; or physical, psychological, or learning disabilities. Items about nonteaching staff or administrators were the first subfactor, and those about teaching faculty or instructions were the second, with one exception. Negative political or stereotypical political view expressions stood alone as a third factor (Table 1.2).

The second principal component of the Student Development Module was Campus Climate and Student Expressions of Prejudice. This factor comprised frequency of student expressions of negative or stereotypical views, agreement with statements about students being treated with respect, campus climate ratings along a series of continuums, and general campus

Table 1.1. Internal Consistency of Factors and Subfactors (Cronbach Alpha)

	<i>Cronbach's Coefficient Alpha 2008</i>	
DVF1: Faculty and staff expressed prejudice	0.96	
DVF1a: Staff expressed prejudice		0.96
DVF1b: Faculty and instructor expressed prejudice		0.93
DVF1c: Faculty and instructor political prejudice		Only 1 item
DVF2: Campus climate and student expressions of prejudice	0.92	
DVF2a: Student expressions of prejudice		0.93
DVF2b: Campus respect for students		0.92
DVF2c: Campus values		0.81
DVF2d: Campus climate		0.73
DVF3: Interpersonal skills and sensitivities	0.85	
DVF3a: Understanding other perspectives		0.87
DVF3b: Current level of development		0.86
DVF3c: Growth in development		0.81

ratings. These four item sets fell into four subfactors, with one exception. The less affective continuum rating of nonintellectual to intellectual fell with the general campus ratings. The more emotive rating continuums remained clustered (Table 1.3).

The third principal component was Interpersonal Skills and Sensitivities. This factor comprised student self-ratings of awareness and understanding of personal development issues (current rating and growth), and student interactions with differing students. There were three subfactors. Student interactions were together, as were current ratings of skills and growth of skills (Table 1.4).

Factor scores were computed by standardizing all items, creating a mean score by subfactor and principal factor, and standardizing the mean scores on a scale with a mean of 5 and a standard deviation of 2. All scale scores were limited to the range from 0.1 to 9.9.

Step Two: Clustering Students. The thirteen Student Development factors and subfactors were combined with Factor 6 and its subfactors from the Core Component of the UCUES 2008 instrument (Campus Climate for Diversity) and Core subfactors 1b (Sense of Belonging and Satisfaction), 2b (Cultural Appreciation and Social Awareness), and 4b (Gains in Cultural Appreciation and Social Awareness). The various demographic variables were then clustered on the basis of these twenty student scores, replicating the process described in Chatman (2007b). The process computed mean factor scores by variable for groups with one hundred or more responding students and then subjected the means to cluster analysis using an agglomerative hierarchical clustering based on centroid distance.

Table 1.2. Student Development Module: Factor 1

	UCUES 2008 Code	Principal	Subfactors (Promax)		
			DVF1a	DVF1b	DVF1c
5. In this academic year, I have heard <i>teaching faculty or instructors</i> express negative or stereotypical views about:					
Race or ethnicity	dvuc08_fac_race	0.75		0.83	
Gender or sexual identity	dvuc08_fac_gender	0.77		0.87	
Political beliefs or affiliations	dvuc08_fac_poli	0.48			0.92
Religion	dvuc08_fac_relig	0.64		0.61	
Sexual orientation	dvuc08_fac_sex	0.81		0.90	
Socioeconomic status	dvuc08_fac_ses	0.77		0.83	
Immigrant background	dvuc08_fac_immgnt	0.80		0.87	
Physical, psychological, or learning disabilities	dvuc08_fac_disable	0.78		0.82	
6. In this academic year, I have heard <i>nonteaching staff or administrators</i> express negative or stereotypical views about:					
Race or ethnicity	dvuc08_staff_race	0.84	0.91		
Gender or sexual identity	dvuc08_staff_gender	0.86	0.92		
Political beliefs or affiliations	dvuc08_staff_poli	0.75	0.80		
Religion	dvuc08_staff_relig	0.84	0.88		
Sexual orientation	dvuc08_staff_sex	0.87	0.93		
Socioeconomic status	dvuc08_staff_ses	0.87	0.91		
Immigrant background	dvuc08_staff_immgnt	0.86	0.91		
Physical, psychological, or learning disabilities	dvuc08_staff_disable	0.86	0.87		
Structure					
DVF1: Faculty and staff expressed prejudice					
DVF1a: Staff expressed prejudice					
DVF1b: Faculty and instructor expressed prejudice					
DVF1c: Faculty and instructor political prejudice					

Race and Ethnicity. One of the most evocative and frequently asserted dimensions along which students can be sorted is race and ethnicity (Figure 1.1). When clustered by responses to these diversity and climate factors, there were four race and ethnicity groups. The most distinct cluster of one was black or African Americans. The second comprised other underrepresented minorities and Filipino (Chicano or Mexican American, Latino, and Filipino). The third cluster was Asian students from ethnicities with a high proportion of recent immigrants: Chinese, Vietnamese, and Korean. The fourth cluster was all other students: Japanese, Indian or Pakistani, Thai, white, and the “decline to state” and “other” students. (This last cluster tends to confirm that students marking “decline to state” or “other” are not underrepresented minority students.)

Gender. Only the male and female responses were numerically able to support the analysis. The two groups differed at about a 1.4 centroid distance (Figure 1.2).

Family Income. The clustering of family income was especially noteworthy. First, with one minor exception, students were arrayed by family income from low to high. The second was the clear presence of two clusters separated at the \$65,000 income level. Those students from families with incomes of \$65,000 or higher were one group, and those from families with lower incomes formed a second group (Figure 1.3).

Sexual Orientation. The clustering suggested some very interesting structures, especially combining questioning and unsure with bisexual and placing “decline to state” with nonheterosexuals, but the clearest distinction was between heterosexual students and other groups (Figure 1.4).

Figure 1.1. Race and Ethnicity

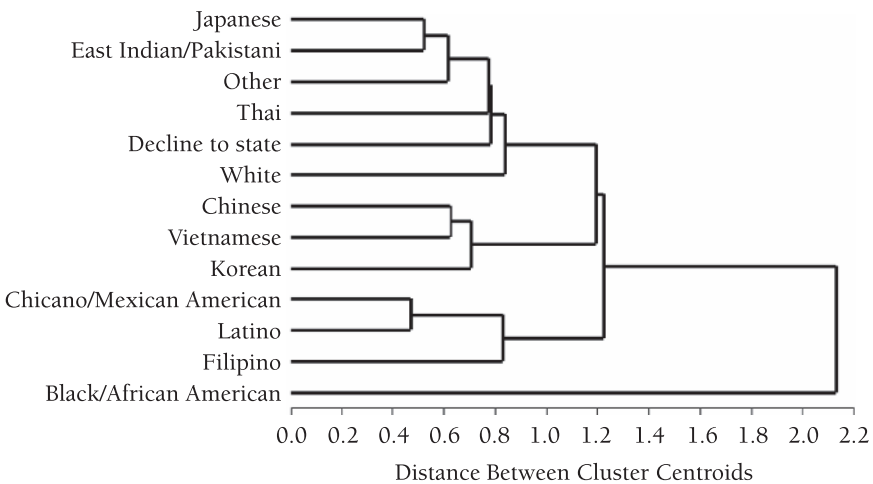


Table 1.3. Student Development Module: Factor 2

	UCUES 2008 Code	Subfactors (Promax)				
		Principal	DVF2a	DVF2b	DVF2c	DVF2d
2. Based on your experience and observation, rate the general climate for students of your UC campus along the following dimensions: Campus climate is ...						
Hostile to friendly	dvuc08_friendnot_	0.58				0.83
Impersonal to caring	dvuc08_carenot_	0.56				0.81
Not intellectual to intellectual	dvuc08_intellnot_	0.48		0.54		
Intolerant to tolerant of diversity	dvuc08_tolernnot_	0.60				0.68
Dangerous to safe	dvuc08_safenot_	0.37				0.61
4. Please indicate the extent to which you agree with the following statements.						
Students of my race/ethnicity are respected on this campus	dvuc08_rspect_race_	0.56		0.83		
Students of my socioeconomic status are respected on this campus	dvuc08_rspect_socio_	0.57		0.82		
Students of my gender/sexual identity are respected on this campus	dvuc08_rspect_gndr_	0.48		0.83		
Students of my religious beliefs are respected on this campus	dvuc08_rspect_relgn_	0.54		0.75		
Students of my political beliefs are respected on this campus	dvuc08_rspect_poli_	0.53		0.72		
Students of my sexual orientation are respected on this campus	dvuc08_rspect_sexor_	0.43		0.81		
Students of my immigration background are respected on this campus	dvuc08_rspect_immgrnt_	0.52		0.84		
Students with a physical, psychological, or learning disability like mine are respected on this campus	dvuc08_rspect_disabl_	0.55		0.76		

7. In this academic year, I have heard *students* express negative or stereotypical views on:

Race or ethnicity	dvuc08_stdnt_race	0.59	0.85
Gender or sexual identity	dvuc08_stdnt_gender	0.57	0.88
Political beliefs or affiliations	dvuc08_stdnt_poli	0.49	0.76
Religion	dvuc08_stdnt_relig	0.53	0.81
Sexual orientation	dvuc08_stdnt_sex	0.56	0.87
Socioeconomic status	dvuc08_stdnt_ses	0.55	0.85
Immigrant background	dvuc08_stdnt_immgmt	0.54	0.84
Physical, psychological, or learning disabilities	dvuc08_stdnt_disable	0.49	0.79

9. What is your level of agreement or disagreement with the following:

I feel valued as an individual on this campus	dvuc08_valued	0.57	0.71
There is a clear sense of appropriate and inappropriate behavior on this campus	dvuc08_clrbhvr	0.51	0.57
I am proud to be a student at this campus	dvuc08_improud	0.55	0.83
Most students are proud to attend this school	dvuc08_stdmproud	0.50	0.79
This institution values students' opinions	dvuc08_stdopmn	0.59	0.77
Diversity is important on this campus	dvuc08_dvrtsimprtcmps	0.42	0.54

Structure

DVF2: Campus climate and student expressions of prejudice

DVF2a: Student expressions of prejudice

DVF2b: Campus respect for students

DVF2c: Campus values

DVF2d: Campus climate

Table 1.4. Student Development Module: Factor 3

	UCUES 2008 Code	Principal	Subfactors (Promax)		
			DVF3a	DVF3b	DVF3c
3. 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 from yours	dvuc08_diff_religion	0.52	0.77		
Their political opinions were very different from yours	dvuc08_diff_politics	0.53	0.75		
They were of a different nationality from your own	dvuc08_diff_nationality	0.56	0.84		
They were of a different race or ethnicity from your own	dvuc08_diff_race	0.58	0.85		
Their sexual orientation was different	dvuc08_diff_sexorient	0.53	0.70		
They were from a different social class	dvuc08_diff_ses	0.56	0.76		
8. Please rate your awareness and understanding of the following issues when you started at this campus and now.					
My own racial and ethnic identity (growth)	dvuc08_ownrace_g	0.37			0.68
My own racial and ethnic identity (now)	dvuc08_ownrace_now_	0.39		0.72	

Social class and economic differences/issues (growth)	dvuc08_classdiff_g	0.43	0.76
Social class and economic differences/issues (now)	dvuc08_classdiff_now_g	0.48	0.80
Racial and ethnic differences/issues (growth)	dvuc08_racediff_g	0.45	0.80
Racial and ethnic differences/issues (now)	dvuc08_racediff_now_g	0.51	0.74
Gender and sexual orientation differences/issues (growth)	dvuc08_sexdiff_g	0.45	0.79
Gender and sexual orientation differences/issues (now)	dvuc08_sexdiff_now_g	0.48	0.63
Physical disabilities issues (growth)	dvuc08_phdsdisable_g	0.39	0.75
Physical disabilities issues (now)	dvuc08_phdsdisable_now_g	0.35	0.63
Emotional disabilities issue (growth)	dvuc08_emosdisable_g	0.42	
Emotional disabilities issues (now)	dvuc08_emosdisable_now_g	0.40	0.72
9. What is your level of agreement or disagreement with the following: Diversity is important to me	dvuc08_dvrsimpmtme	0.44	

Structure

- DVF3: Interpersonal skills and sensitivities
- DVF3a: Understanding other perspectives
- DVF3b: Current level of development
- DVF3c: Growth in development

Figure 1.2. Gender Identification

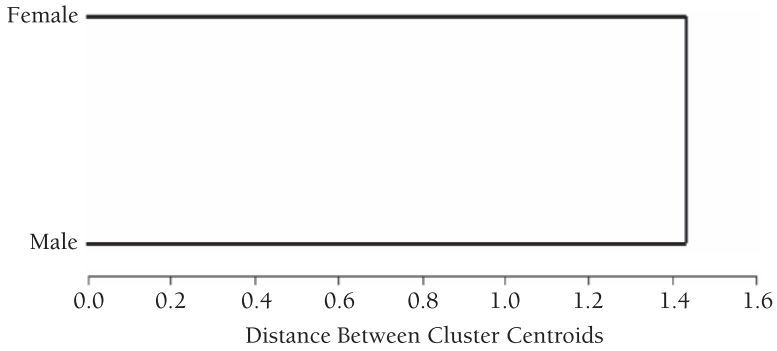


Figure 1.3. Family Income

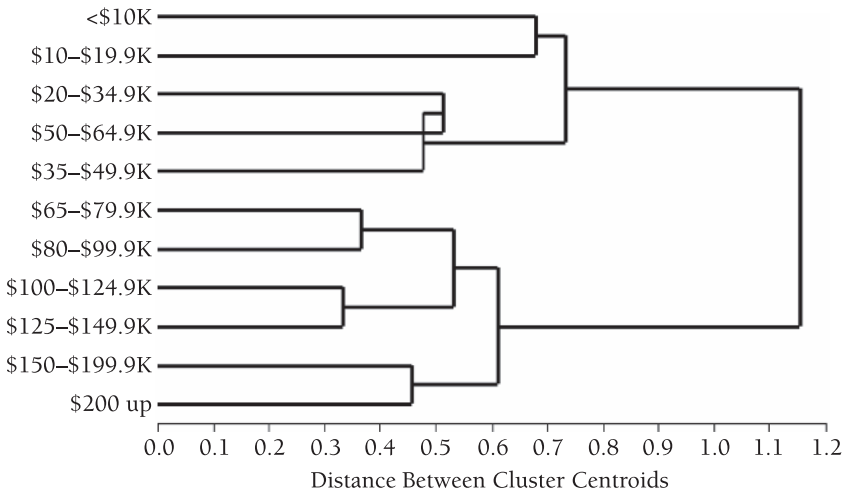
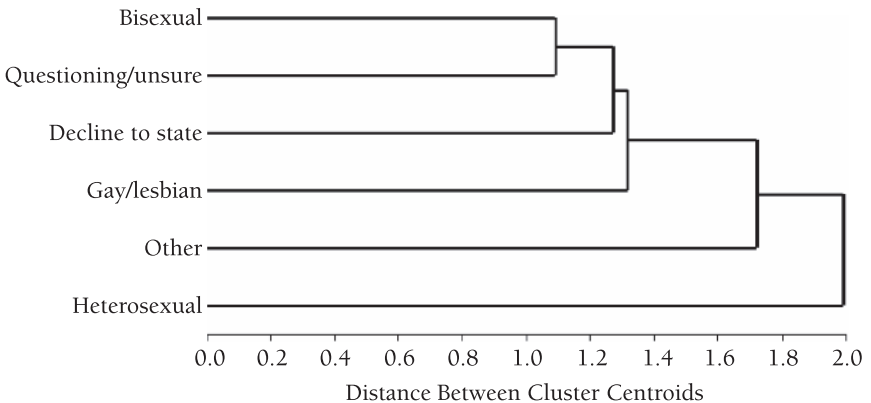


Figure 1.4. Sexual Orientation



Academic Discipline. Clustering students by area of academic major produced three primary groups. The group of area and ethnic studies students responded in a uniquely identifiable way. The second cluster was science, engineering, math, computer sciences, biological sciences, business and management, and agriculture and natural resources. This is close to a SEMs cluster. Humanities, social sciences, public administration, and communications and journalism were a third cluster (Figure 1.5).

Religious Affiliation. Figures 1.6 and 1.7 display the results of cluster analysis by religious affiliation. Figure 1.6 used full detail and Figure 1.7 was based on religion classified into general areas: Eastern, Christian, Muslim, Jewish, spiritual unaffiliated, and not spiritual. The solution for detailed religious affiliations was not helpful because only “other religion” was clearly separated, and it is by definition not clearly defined. The Figure 1.7 fit of sorted religions was similarly unhelpful because the pattern was one of long branches without hierocracy. Moreover, the pattern did not reflect “religiousness.” Clear separation and organization was missing. Therefore, religion was dropped from further consideration.

Political Affiliation. It was tempting to break respondents into three clusters (conservative, liberal or very liberal, and centrists), but the clearer distinction was between conservative students and all others. As was the case for family income, clustering did follow the array of very liberal to conservative students. Because of small numbers, very conservative students were combined with conservative students prior to clustering (Figure 1.8).

Step Three: Identifying Real Differences. The clusters from Step 2 were treated as class levels for analysis of variance applied to each principal factor and subfactor. Type III sum of squares tests were assessed to measure the unique contribution of the class variables. These results are presented in Table 1.5, with three significance levels flagged (0.001 , 1×10^{-8} , and 1×10^{-30}). Critical F values were directly computed for 0.001 1×10^{-8} and imputed for 1×10^{-30} . Although this is an unusual use of F-statistics, it is helpful in identifying relative strength and considers different numerator degrees of freedom.

The race and ethnicity outcomes will be described to illustrate how the table can be used. This was a frequently important factor in assessing climate and diversity. There were two instances when race and ethnicity exceeded the highest standard, 1×10^{-30} : Sense of Belonging and Satisfaction, and Cultural Appreciation and Social Awareness. Both of these are core segment subfactor scores. When examining those two core subfactors, it is important to examine those responses by race and ethnicity. At the next level of importance, 1×10^{-8} , there were eight instances where race and ethnicity should be part of the analysis. These ranged from Interpersonal Skills and Sensitivities to Climate of Respect for Personal Beliefs. The third level of result was exceeded in seven cases. It is less critical to include race and ethnicity when examining these factors. Last, there were three subfactors

Figure 1.5. Academic Disciplinary Code

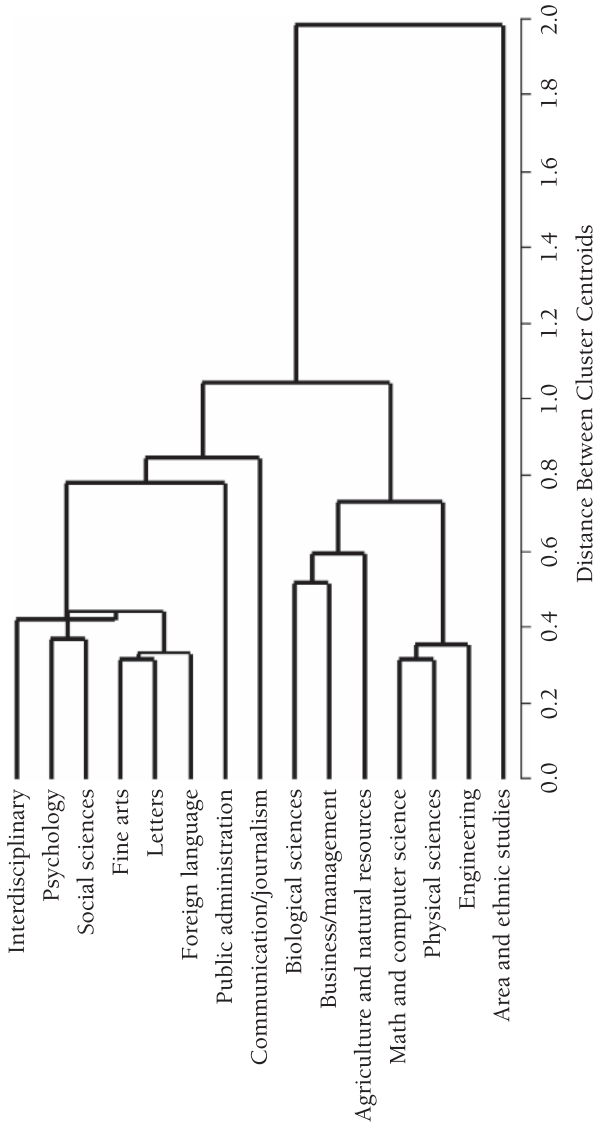


Figure 1.6. Religious Affiliation (Detail)

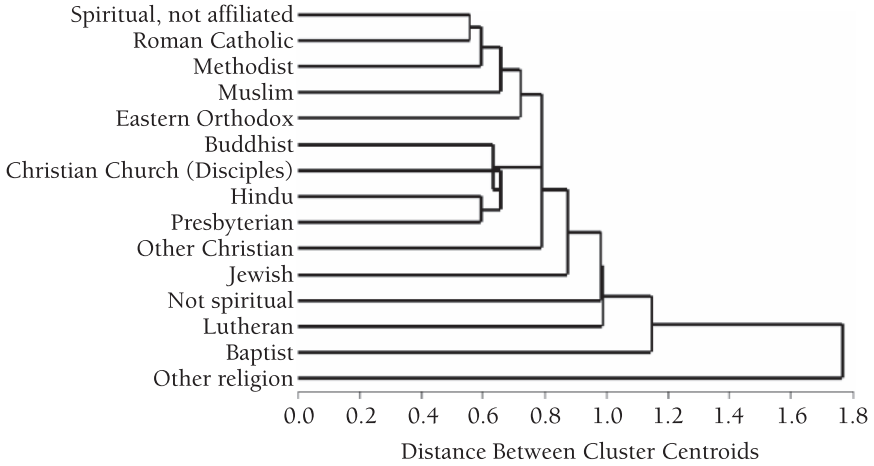
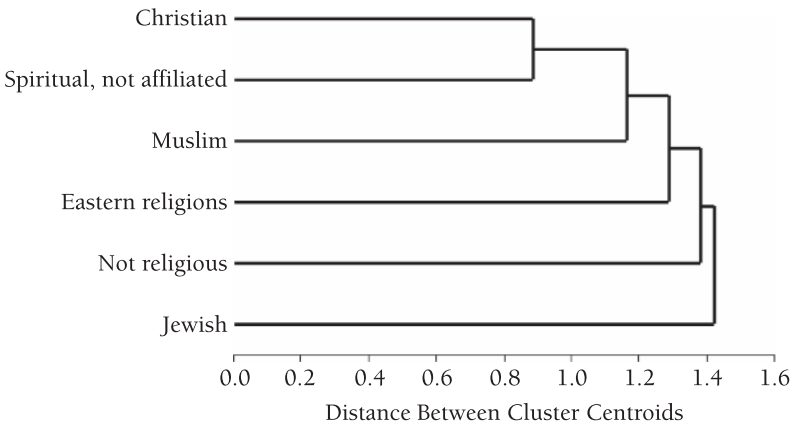
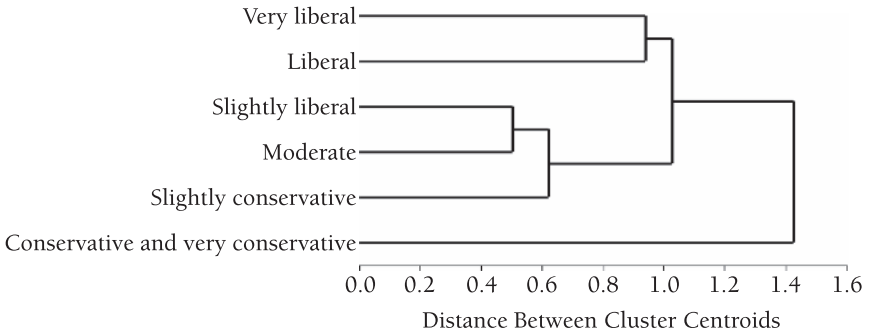


Figure 1.7. Religious Affiliation (Grouped)



where race and ethnicity was not important by these standards: Freedom to Express Beliefs, Campus Values, and Campus Climate.

Table 1.5 can also be used to identify student characteristics that should be considered in studying student development and campus climate factors by following the campus rows. Using DVF3 Interpersonal Skills and Sensitivities, for example, finds that there are three characteristics that should be considered. In declining importance, the student characteristics that should be considered are area of academic major, race and ethnicity, and political orientation. It is essential that area of academic major be a part of the study.

Figure 1.8. Political Orientation

Discussion

The reader will note that there are no statistical facts presented by demographic groupings. The results may well be obvious in some instances, but they are left to other analysts to compute and report. For example, the measurement of Campus Climate and Student Expressions of Prejudice varied most clearly by Sexual Orientation. It is reasonable to assume that heterosexual students observed fewer problematic instances, but it was not the purpose of this chapter to call attention to relative “problem areas.” The dual purposes of this study were to dramatically reduce complexity on the one hand and call attention to measures that require greater complexity than is typically applied on the other hand. Complexity was reduced by finding factor structures in the Student Development module and by reducing the number of statistically distinguishable groupings within the demographic variables. In other words, item results can be combined into a smaller number of factors scores, and many individual differences within demographic variable groups can similarly be combined into fewer distinguishable clusters. These reductions produce greater statistical power and should be helpful to campus researchers. Perhaps more important than *reducing* variable complexity is the contribution of this chapter to *increasing* analytical complexity for issues that have often been oversimplified. For example, Academic Discipline of major was exceeded only by Sexual Orientation as a variable that should be considered in assessing campus climate for diversity and inclusion, but academic discipline has seldom been part of campus climate evaluations (exceptions are Cole and Espinoza, 2008; and Cress and Sax, 1998). (Recall that this is based on unique contribution after all other primary factors were statistically considered.)

A remarkably difficult problem has not been addressed in this chapter. Measuring campus climate for diversity and inclusion is difficult because the outcomes reflect student perception, and perception varies. The fact that academic area of major was often an important factor to consider exempli-

fies this underlying fact and mirrors prior research findings showing the frequently ignored importance of academic field of study for the student experience (Chatman, 2008). Universities are in the business of education, and education can change perception. An example from Clery Act reporting at the University of California, Davis, is useful. UC Davis's reported number of forcible sex offenses more than doubled from 2004 to 2006 (from thirty-three to sixty-eight). Speaking about the increase to fifty in 2005, UC Davis Chancellor Vanderhoef's reaction to the increase was that "the statistical increase does not necessarily mean that more sexual assaults are occurring, but that sexual assault is becoming less of a 'silent epidemic' and victims are feeling more comfortable coming forward to report the crime" (Jones, 2006). His explanation was reasonable given that UC Davis had been awarded a \$2 million grant to fight sexual assault and encourage reporting. Vanderhoef went on to say, "We consider that to be a very important measure of the success of these programs" (Jones, 2006, p. 2). When the number subsequently increased to sixty-eight for the following year, can it be assumed that the increase was similarly a measure of success? Perceiving that you were the victim of prejudicial statements by fellow students is not as horrific as being sexually assaulted, but reported incidence rates and explanations for annual change share difficulties. In both cases, success as a quantified outcome can be counterintuitive.

Returning to the results at hand, two students hearing the same statement made by a third student might judge that expression to be racist or not, and their judgment reflects sensitivity and perception. In turn, student sensitivity and perception has many roots, and academic instruction can be the most salient. Because perception and attribution differ, higher education should be careful about establishing campus climate outcome scores in isolation. The fundamental problem is that an objective, absolute measure of campus climate for diversity is probably unachievable; therefore it is unclear whether an "improved" undergraduate experience would raise or lower climate scores. Should higher education seek to increase awareness and perceptual sensitivity and then likely receive "worse" scores from student evaluations?

If instruction creates greater sensitivity and thereby more reported incidents of lower perceived acceptance, then instruction will lead to lower, more negative ratings. To illustrate this more clearly, one set of measures is provided. Students in area and ethnic studies should have learned to recognize prejudicial communication and should be more sensitive to communication that might be prejudicial. Upper-division area and ethnic studies students rated Climate of Respect for Personal Beliefs (Core Factor 6c) at 4.16. Humanities and social science students gave it a substantially higher 4.80, and science, engineering, math, and business students rated it even higher at 5.05. Obviously, field of study affected scores. Should the Office of the President marshal resources to improve the situation in area and ethnic studies, on the basis of the much lower score in that area? Are area and

Table 1.5. Independent Effect of Main Effects as F Statistics: Core Diversity and Climate Plus Student Development Module Factors

	At 1x e -30 (Interpolated) At .000000001 At .001	Critical F Values				
		Race/ Ethnicity	Academic Discipline	Family Income	Sexual Orientation	Political Orientation
Numerator Degrees of Freedom	129	72	48	48	48	
Core Factors	37	21	15	15	15	
Subfactor 1b: Sense of Belonging and Satisfaction	11	7	5	5	5	
Subfactor 2b: Cultural Appreciation and Social Awareness	3	2	1	1	1	
Subfactor 4b: Gains in Cultural Appreciation and Social Awareness	130	79	162	64	24	
Factor 6: Campus Climate for Diversity	265	495	35	14	28	
Subfactor 6a: Climate for Personal Characteristics	76	88	14	7	8	
Subfactor 6b: Freedom to Express Beliefs	35	52	16	243	82	
Subfactor 6c: Climate of Respect for Personal Beliefs	84	75	39	320	198	
	44	75	178	26	14	

Development Module Factors					
DVF1: Faculty and staff expressed prejudice	26	11	24	40	17
DVF1a: Staff expressed prejudice	38		29	31	
DVF1b: Faculty and instructor expressed prejudice	17	18	21	51	15
DVF1c: Faculty and instructor political prejudice	17	69	16		165
DVF2: Campus climate and student expressions of prejudice				125	
DVF2a: Student expressions of prejudice	29	14	20	31	
DVF2b: Campus respect for students	17	23	192	207	25
DVF2c: Campus values	80			48	
DVF2d: Campus climate		13		40	
DVF3: Interpersonal skills and sensitivities	88	185			12
DVF3a: Understanding other perspectives	36	33			
DVF3b: Current level of development	81	87			
DVF3c: Growth in development	51	158		16	13
Dark	2	8	2	9	3
Gray	8	4	8	5	5
Light	7	4	1	1	4
Sum	17	16	11	15	12

ethnic studies majors the most sensitive and accurately calibrated indicators, or are they seeing through a warped lens that distorts observation? More telling and of more value is the fact that campus values for area and ethnic studies majors ranged from 3.7 to 5.3 (mean = 5, sd = 2). There was much campus variation.

Therefore, because area and ethnic studies students generally rate their campus climate lower, and because there is variance for area and ethnic studies majors across campuses, the low score given Climate of Respect for Personal Beliefs by area and ethnic studies majors reflects exposure to certain instruction and subject matter taught, as well as effects beyond that. Campuses differ in student composition by ability, race and ethnicity, gender identity, socioeconomic background, and a variety of other characteristics. Campuses also differ by reputation as free and welcoming or encouraging public activism. In addition, the extent to which students select a campus on the basis of these characteristics and then select an academic discipline consistent with their epistemologic notions and in which they are comfortable is obviously a critically important area of research in an age of accountability (see Smart, Feldman, and Ethington's review, 2004, of Holland's theories, for example). What should be clear from this example is that campus climate and diversity are areas where more comprehensive and complex analyses are demanded. Simple, clear statements of results are unlikely to be accurate and are therefore not likely to be helpful. It is hoped that the results of this study encourage others to pursue studies that seek a parsimonious solution to analyses of large amounts of data.

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