

**Assessing the Campus Climate at UCSD:
Using Factor Scores to Identify the Differential Experiences, Perceptions, Behaviors
and Beliefs of URM and Non-URM Students**

The Diverse Learning Environments Survey (DLE) was administered to a sample of 14,000 UCSD undergraduates in the spring, 2011 quarter. According to the Higher Education Research Institute (HERI) at UCLA, the DLE Survey “captures student perceptions regarding the institutional climate, campus practices as experienced with faculty, staff, and peers, and student learning outcomes.”

(<http://www.heri.ucla.edu/dleoverview.php>)

As the DLE is intended to provide measures and indicators of campus climate and experiences of traditionally under-represented students (URM) particular emphasis was placed on obtaining responses from African-, Mexican-, Latino-, and Native –American students. For this survey, all students from these three groupings were invited to participate in the DLE, with the remainder of the sample comprised of White, Asian, and Other student groupings.

Of the 14,000 students invited to participate in the DLE, 2,026 responded for a response rate of approximately 15%. The distribution in the response file for racial/ethnic groupings and comparisons with the UCSD undergraduate profile are displayed in Table 1.

**Table 1
DLE Respondents by Racial/Ethnic Grouping**

		Racial/Ethnic Grouping			
	Racial-Ethnic Grouping	Frequency	Survey Percent	Fall 2010 Third Week	Difference
	AFR-AMER	70	3.5	1.8	1.68
	ASIAN	818	40.4	44.7	-4.37
	MEXICAN-AM	261	12.9	10.8	2.08
	FILIPINO	63	3.1	4.2	-1.06
	LATINO	57	2.8	3.0	-0.17
	NATIVE AMER	15	.7	.5	0.25
	WHITE	441	21.8	24.9	-3.09
	OTHER	301	14.9	10.2	4.69
	Total	2026	100.0	100.0	

The over-sampling strategy resulted in somewhat higher proportions of African-, Mexican-, and Native-American students in the respondent group than found in the overall student population. However the relatively low numbers of African- and Native-

American respondents made reliable inferences difficult. For purposes of comparing the inter-group experiences with sufficient cell sizes, African-, Native-, and Mexican-Latino-American respondents were combined to create a URM grouping totaling 403 respondents`.

Table 2
DLE Respondents by Class Level

		Frequency	Valid Percent
Valid	FRESHMAN	103	5.3
	SOPHOMORE	340	17.5
	JUNIOR	490	25.3
	SENIOR	1005	51.9
	Total	1938	100.0
Missing	System	88	
Total		2026	

The DLE sample was also designed to over-sample juniors and seniors due to their longer exposure and greater experience with the campus climate at UCSD. Approximately 5% of the sample were first time freshmen, while over 75% were juniors or seniors. Although not displayed here, the sample over-sampled students who matriculated to UCSD as freshmen. Again, this was intended to gather data from students who likely had a more prolonged experience with the UCSD undergraduate experience.

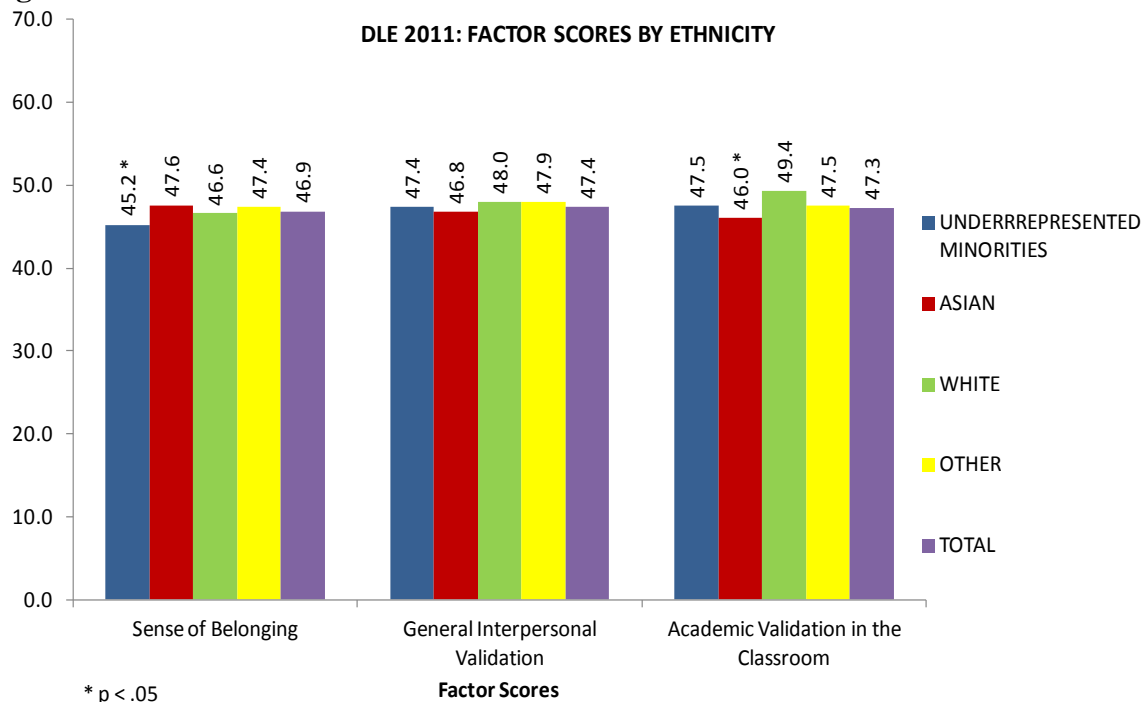
Selected Findings by URM-Non-URM Groupings

For this summary, factor scores are compared for racial/ethnic groupings. DLE factor scores are designed to portray the experiences, behaviors, and outcomes of respondents using response patterns across a number of items that are measuring the same or similar construct. To measure these broad underlying constructs, Confirmatory Factor Analysis (CFA) was used by HERI to combine individual survey items into nomothetic or global measures that capture these experiences, behaviors, and attitudes. According to HERI, factor scores are particularly useful for benchmarking or gauging the comparative experiences of different student groupings. The DLE factor scores have a range from 1-100 and a mean of 50. National comparison scores were also provided by HERI on these constructs so we can compare UCSD responses to public colleges and universities from HERI's national DLE sample. Comparison data may be found at: (http://studentresearch.ucsd.edu/sriweb/Surveys/DLE2011/DLE_2011_Total.pdf)

The factor score definitions and survey items are provided in the appendix to this report.

Figure 1 displays selected factor scores for URM and other student groupings.

Figure 1



The Sense of Belonging construct is used in higher education research as a psychological measure of integration. According to Hurtado and Carter (1997)¹, Sense of Belonging illustrates a student's psychological sense of integration, which is an important factor in retention conceptual frameworks. Sense of belonging essentially illustrates the interplay between the individual and the institution, or how the institution influences a student's sense of integration and involvement. This construct posits that students' success is in part contingent upon the extent to which they feel welcomed by an institution's climate and a part of the institutional environment. For the DLE, the original Bollen and Hoyle items were used to include broader concepts of institutional integration and cohesion. This built upon the research initially conducted by Bollen and Hoyle (1990) on perceived institutional cohesion.²

Although the scores are generally similar, analysis of variance and post-hoc tests suggest a statistically significant difference between student groupings on certain factors. With respect to the factor score for *Sense of Belonging*,³ URM students score significantly lower than comparison groupings.

Asian students score significantly lower than other groupings on the *Academic Validation in the Classroom* construct. Scores were similar across racial-ethnic groupings for the *General Interpersonal Validation* construct. Although statistically significant differences

¹ Hurtado, Sylvia and D. Carter (1997). Effects of College Transition and Perceptions of the Campus Racial Climate on Latino College Students' Sense of Belonging. *Sociology of Education*, Vol. 70, No. 4 (Oct., 1997), pp. 324-345

² Bollen, K.A and R. Hoyle (1990). Perceived Cohesion: A Conceptual and Empirical Examination. *Social Forces*, Vol. 69, No. 2 (Dec., 1990), pp. 479-504

³ Sense of Belonging factor score includes the items: I feel a sense of belonging to my campus, I feel that I am a member of this college, I see myself as a part of the campus community, and I would recommend this college to others. Alpha for construct = .858

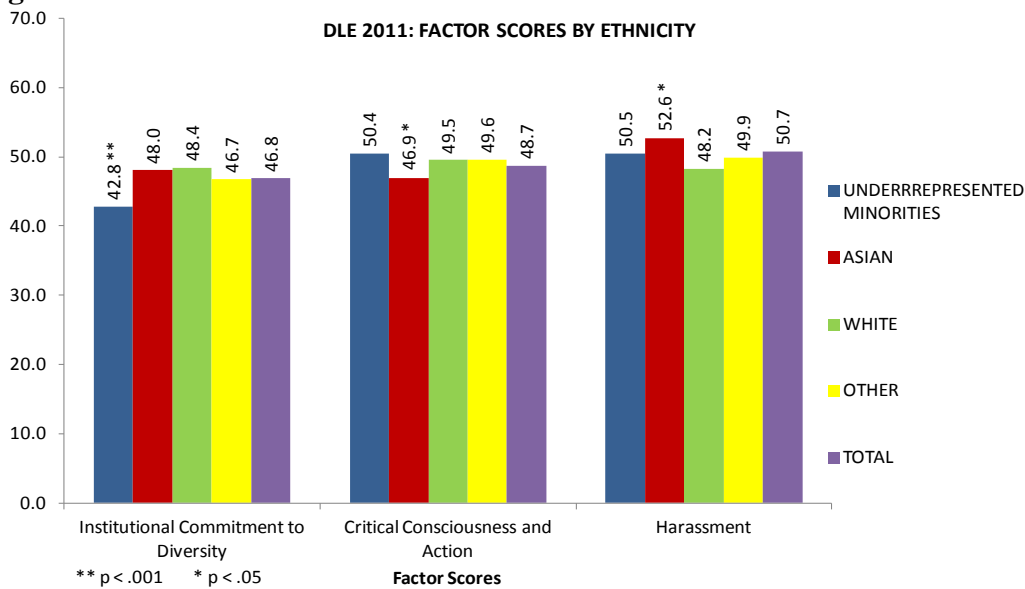
were found between groupings on the three factor scores, the *Academic Validation* score showed a small magnitude of difference or effect size ($\eta^2 = .018$). Effect size of mean score differences for the Sense of Belonging and General Interpersonal factors ranged from modest for Academic Validation ($\eta^2 = .18$) to small for Sense of Belonging ($\eta^2 = .008$).

Inspection of Figure 2 suggests a noticeable and statistically significant score difference between URM students and other respondents on the *Institutional Commitment to Diversity* construct. This construct includes survey items such as:

This College:

1. Promotes the appreciation of cultural differences
2. Has a long standing commitment to diversity
3. Accurately reflects the diversity of the student body in publications (e.g. brochures, website, etc.)

Figure 2



The mean difference in scores between URM and the comparison groupings indicates a moderate effect size ($\eta^2 = .042$) suggesting these differences are of some practical significance with respect to student views on this diversity indicator.⁴ Comparison of UCSD *Institutional Commitment* scores with the HERI national DLE sample suggests that the magnitude of difference is small to medium ($\eta^2 = .34$).

There are statistically significant differences between groupings with respect to the *Critical Consciousness and Action* factor score, however the effect size is modest ($\eta^2 = .02$). This construct is a proxy for student advocacy and action on social issues.

⁴ Cohen, Jacob (1988). *Statistical power analysis for the behavior sciences* (2nd ed.). Routledge

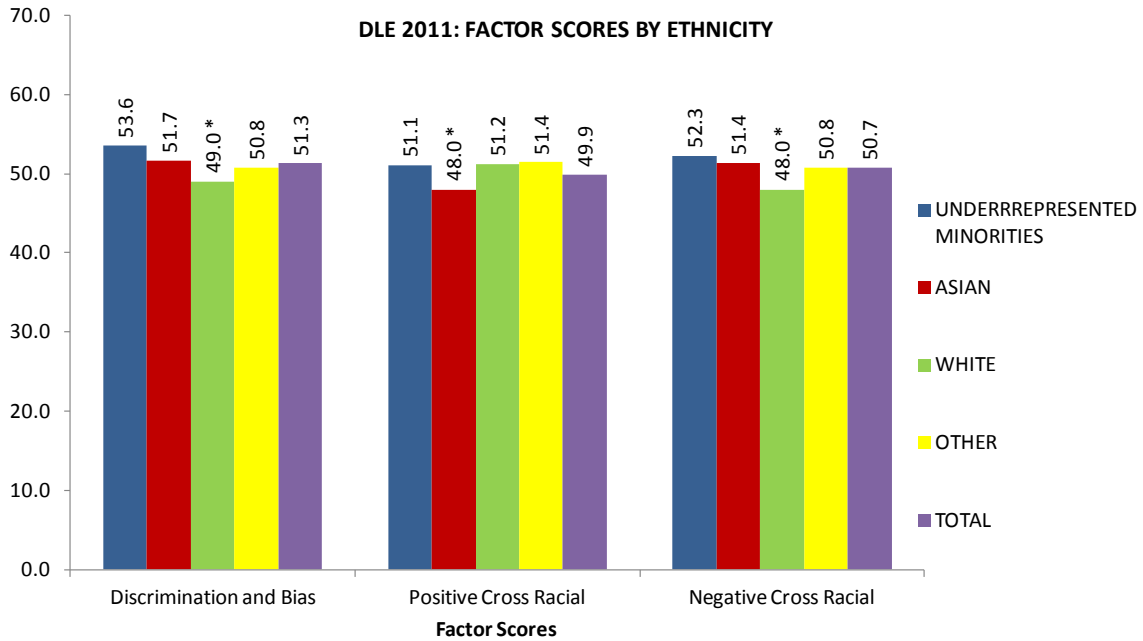
White, URM, and Other student groupings show higher scores on this score than the Asian sub-grouping.

With respect to the *Harassment* construct, Asian students indicated higher levels of this experience than the comparison groupings. Although the differences are statistically significant, the effect size or magnitude of the observed difference is small ($\eta^2 = .02$). According to Hurtado, et. al (2010)⁵, *Harassment* scores include what the respondent perceives as direct and indirect threats and “micro-aggressions.”

The Harassment construct includes survey items pertaining to threats of physical violence or assault, harassing phone calls, reporting discrimination incidents to campus authorities, and damage to personal property. As noted, Asian students showed higher scores while White students tended to have lower harassment scores, with Other and URM students displaying similar scores on this factor. With respect to national comparisons for the *Harassment* score, UCSD is similar to the national comparison group of participating campuses identified by HERI in their national study (UCSD mean=50.7, Comparison Colleges=50.2).

Figure 3 displays scores for the *Discrimination and Bias*, *Positive Cross Racial* experiences, and *Negative Cross Racial* experiences

Figure 3



* p < .05

The *Discrimination and Bias* construct includes items pertaining to negative verbal and written comments, offensive visual images, witnessing discrimination, and perceived

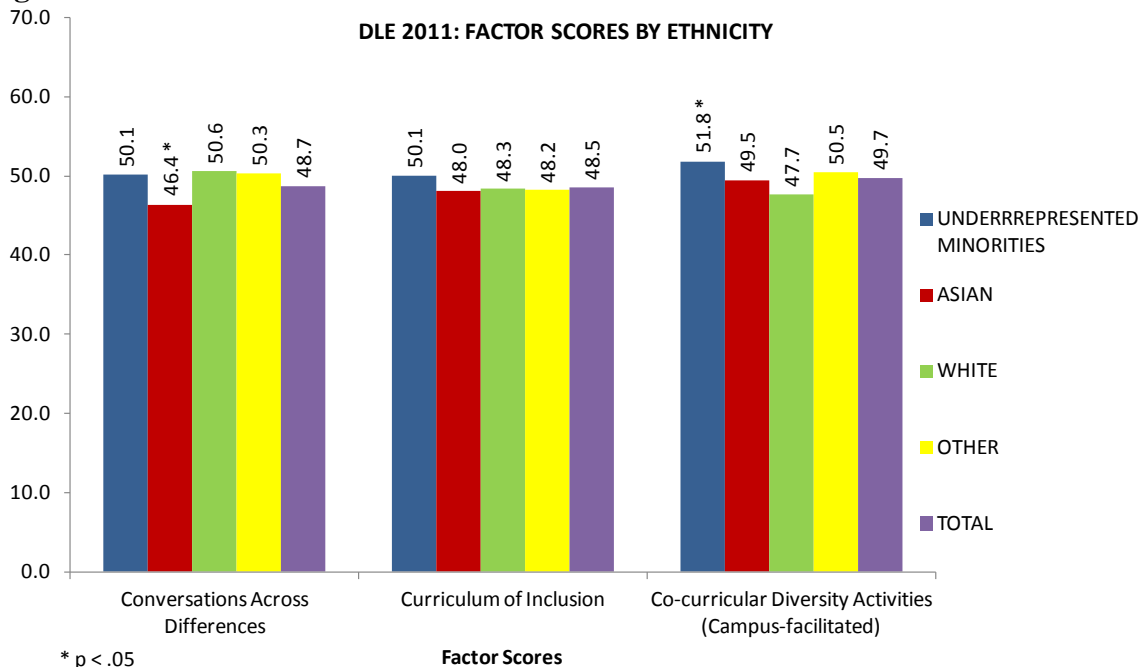
⁵ Hurtado, Sylvia, L. Arellano, M. Cuellar, C. Wann, and C. Alvarez (2010). University of California, Los Angeles: Diversity Research Institute.

exclusion from gatherings or events. As shown in figure 2, Asian, URM, and Other respondents reported higher scores on the Discrimination and Bias construct than White respondents. Although the score differences are statistically significant, the effect sizes for these inter-group differences are small to modest; suggesting the magnitude of these differences is limited ($\eta^2 = .018$).

The *Cross-Racial Interaction* constructs include items pertaining to having positive or negative interactions with students from a racial/ethnic group other than the respondent's. For the Positive Interaction construct, the items include studying or preparing for class, socializing, having meaningful and honest discussions about racial/ethnic relations outside of class, and sharing personal feelings and problems. URM, White, and Other students indicated more positive cross-racial experiences than Asian students. With respect to negative cross-racial interactions, White students report significantly lower negative interactions than the comparison groupings. As with the discrimination and harassment factor score differences, although the differences between groupings were statistically significant, the effect sizes were small ($\eta^2 < .02$). On a national level, the cross-racial construct scores for UCSD and the HERI comparison institutions suggests little or no difference between UCSD and the comparison colleges and universities.

Figure 4 presents factor scores by racial-ethnic grouping for the *Curriculum of Inclusion*, *Co-Curricular Diversity Activities*, *Pluralistic Orientation*, *Social Agency*, and *Academic Self-Concept* constructs.

Figure 4



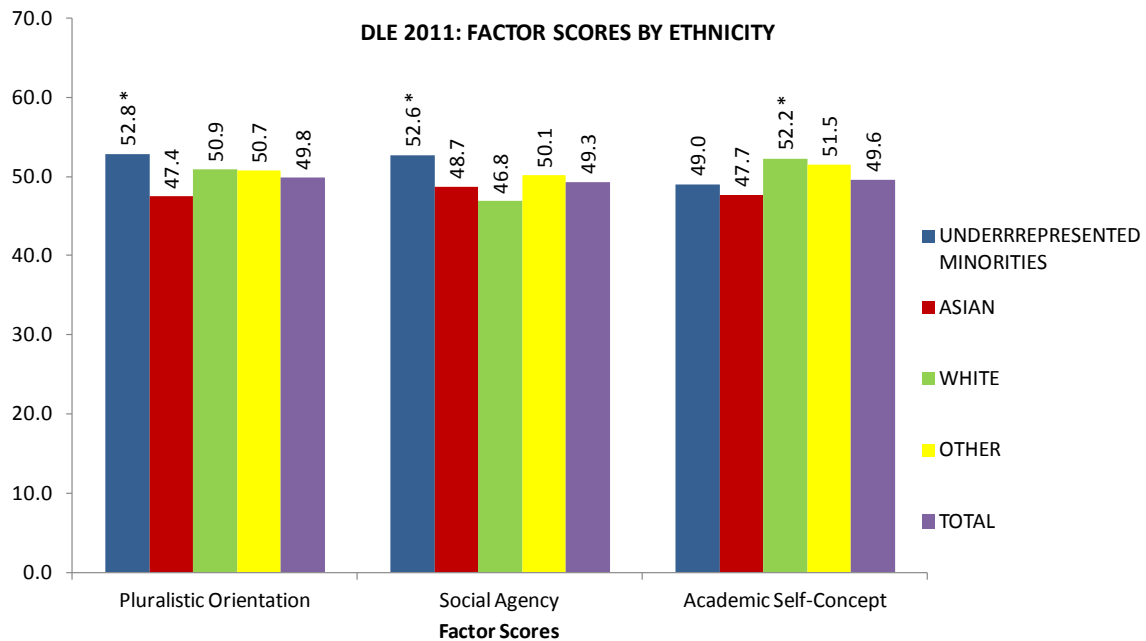
The *Conversations Across Difference* construct includes items that measure the students' interaction with students from different racial/ethnic groups, socio-economic levels, regions or countries, and those with disabilities. Overall the identified student groupings tended to have similar scores on this construct, with the exception of Asian students who

had significantly lower scores on this construct. Again, the effect size of this difference was small.

Curriculum of Inclusion might best be considered an indicator of diversity related practices in the classroom or academic major. More specifically, this construct asks the respondent to indicate how many courses have included materials about race/ethnicity, socio-economic differences, gender, privilege, disabilities, and service learning. URM students scored significantly higher on this measure suggesting that their course or major experience included more diversity related concepts. Scores for the other student groupings did not differ significantly on this measure.

The *Co-Curricular Diversity Activities* construct includes items designed to measure student participation in ongoing campus-organized discussions on racial/ethnic issues (e.g. inter-group dialogue), identity center activities, debates or panels about diversity issues, and diversity related performances, art, or presentations. URM, Asian, and Other students tended to have higher scores on this factor, and were significantly different than White students. As with the Critical Consciousness factor, URM and Other students were more likely to participate in these campus-organized activities. UCSD had the same overall score on this construct as the national comparison sample (49.7).

Figure 5



* p < .05

Factors scores for *Pluralistic Orientation*, *Social Agency*, and *Academic Self-Concept* are displayed in Figure 5. The *Pluralistic Orientation* construct is comprised of items that measure the respondent’s self-rating in a number of areas pertaining to interacting with others with different beliefs, openness to having views challenged, working cooperatively with diverse people, and the ability to view the world from someone else’s perspective. URM students tended to rate themselves more highly on these items than the comparison

groupings, with the factor scores significantly higher than the other groupings. White and Other students tended to rate themselves similarly, while Asian students tended to rate themselves lower on these items. Although the differences were statistically significant, the effect size or magnitude of the difference is small. ($\eta^2 = .04$). Comparison of the UCSD score with the national comparison data indicates no difference with the national sample.

Social Agency includes items that ask the student to rate the importance of various goals, intentions, and values that relate to social change. This construct includes items such as the importance of participating in a community action program, helping others in difficulty, influencing social values, helping to promote racial understanding, and keeping up to date with political affairs. URM and Other students tended to rate themselves more highly on these items, and their scores are significantly higher on this construct than the White and Asian comparison groupings. White students tended to have lower scores on this construct. The scores are statistically significant, however the effect size of the observed difference is small ($\eta^2 < .04$). A comparison of UCSD scores with the national sample suggests little to no difference on this construct.

The DLE includes items that ask the student to self-rate traits such as academic ability, intellectual self-confidence, drive to achieve, and mathematical ability. These items comprise the *Academic Self-Concept* construct. Asian students had the lowest self-ratings on this measure, and were significantly lower than the other student comparison groupings. URM students also tended to indicate lower scores on this construct, as did Other students. White students tended to have higher self-ratings on this construct.

Figure 6

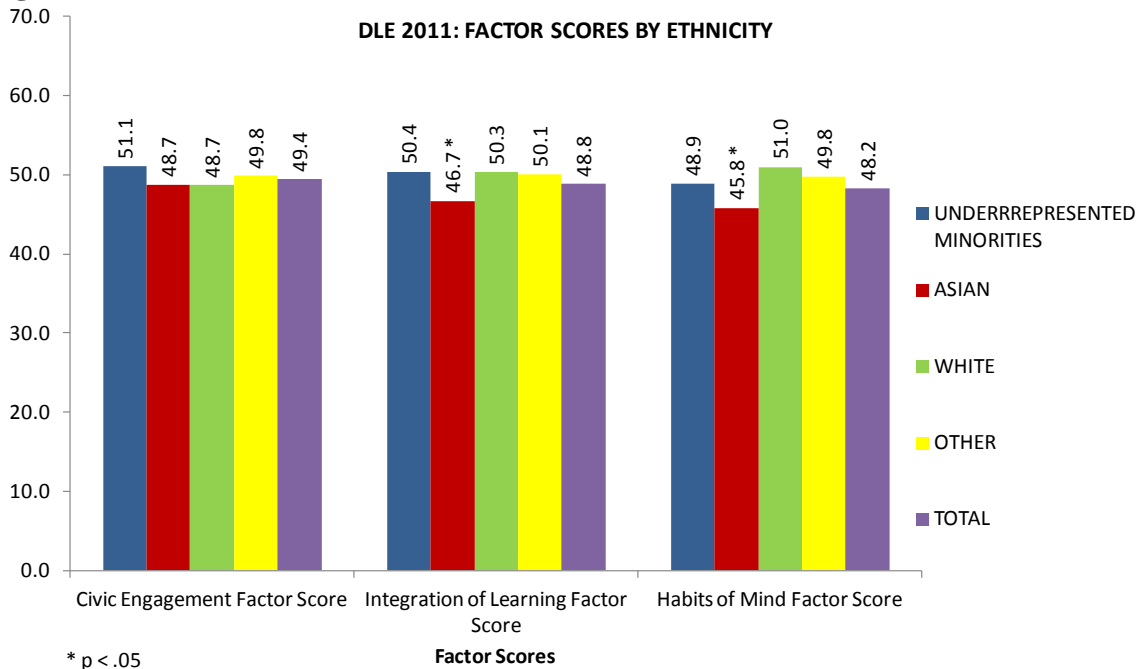


Figure 6 displays the factor scores for the *Civic Engagement*, *Integration of Learning*, and *Habits of Mind* constructs. For purposes of this analysis, the *Civic Engagement*

factor score is of particular interest. The *Civic Engagement* score is comprised of items that measure student self-reported activities or behaviors since entering UCSD. The items include participating in political communications about an issue or cause, demonstrations or rallies, political campaigns, discussing politics, and performing community service. URM students demonstrated somewhat higher levels of civic engagement as measured by the items included in this construct ($p < .05$). Using post-hoc comparisons, White, Asian, and Other students were found to have similar scores on this construct. UCSD also displays similar scores to comparison institutions on this factor. However, the effect size of these differences was small and not of practical significance. Comparison of UCSD scores on the Civic Engagement factor score with the national comparison institutions suggests little difference in civic engagement scores.

As noted by higher education scholars, campus climate is a complex, multi-faceted concept. No one single measure can capture the multi-variate nature of the set of interactions, behaviors, peer effects, attitudes, perceptions, and cognitive and affective impact of college and major. The use of the HERI derived factor scores and accompanying constructs provides valuable and more reliable inferences regarding the differential perceptions, attitudes, and experiences of UCSD's diverse undergraduate population.

**APPENDIX: DLE 2011 FACTOR
SCORES BY ETHNICITY**

Items Included in HERI Factors

Sense of Belonging measures the extent to which students feel a sense of academic and social integration on campus.

Survey items and factor loadings:

Please indicate the extent to which you agree or disagree with the following statements:

I feel a sense of belonging to my campus	0.884	I see myself as a part of the campus community	0.787
I feel that I am a member of this college	0.836	If asked, I would recommend this college to others	0.611

Cronbach's α = 0.858

General Interpersonal Validation is a unified measure students' view of faculty and staff's attention to their development.

Survey items and factor loadings:

Please indicate the extent to which you agree or disagree with the following statements:

At least one faculty member has taken an interest in my development	0.833	Staff recognize my achievements	0.728
At least one staff member has taken an interest in my development	0.804	Faculty empower me to learn here	0.615
Faculty believe in my potential to succeed academically	0.791	Staff encourage me to get involved in campus activities	0.547

Cronbach's α = 0.864

Academic Validation in the Classroom measures the extent to which students' view of faculty actions in class reflect concern for their academic success.

Survey items and factor loadings:

Please indicate how often you have experienced the following in class at this college:

Felt that faculty provided me with feedback that helped me assess my progress in class	0.857	Faculty were able to determine my level of understanding of course material	0.799
Felt that my contributions were valued in class	0.852	Felt that faculty encouraged me to ask questions and participate in discussions	0.790

Cronbach's α = 0.895

Institutional Commitment to Diversity is a measure of a student's perception of the campus' commitment to diversity.

Survey items and factor loadings:

Please indicate the extent to which you agree or disagree with the following statements. This college:

Promotes the appreciation of cultural difference	0.828	Appreciates differences in sexual orientation	0.665
Has a long standing commitment to diversity	0.804	Has campus administrators who regularly speak about the value of diversity	0.660
Accurately reflects the diversity of the student body in publications (e.g. brochures, website, etc.)	0.751	Cronbach's α = 0.857	

Critical Consciousness and Action is a unified measure of how often students critically examine and challenge their own and others' biases.

Survey items and factor loadings:

How often in the past year did you:

Made an effort to educate others about social issues	0.736	Recognized the biases that affect your own thinking	0.657
Critically evaluated your own position on an issue	0.727	Feel challenged to think more broadly about an issue	0.606
Challenged others on issues of discrimination	0.668	Make an effort to get to know people from diverse backgrounds	0.511

Cronbach's α = 0.813

Harassment measures the frequency that students experience threats or harassment.

Survey items and factor loadings:

Indicate how often you have experienced:

Threats of physical violence	0.903	Damage to personal property	0.762
Physical assaults or injuries	0.835	Reported an incident of discrimination to a campus authority	0.755
Anonymous phone calls	0.822	Experienced sexual harassment	0.670
Reported an incident of sexual harassment to a campus authority	0.795	Cronbach's α = 0.918	

Discrimination and Bias measures the frequency of students' experiences with more subtle forms of discrimination.

Survey items and factor loadings:

Indicate how often you have experienced:

Verbal comments	0.760	Witnessed discrimination	0.715
Written comments (e.g., emails, texts, writing on walls)	0.725	Heard insensitive or disparaging remarks from staff	0.712
Offensive visual images or items	0.748	Exclusion (e.g., from gatherings, events)	0.692
Heard insensitive or disparaging remarks from faculty	0.721	Heard insensitive or disparaging remarks from students	0.651

Cronbach's α = 0.889

Positive Cross-Racial Interaction is a unified measure of students' level of positive interaction with diverse peers.

Survey items and factor loadings:

To what extent have you experienced the following with students from a racial/ethnic group other than your own?

Had intellectual discussions outside of class	0.806	Studied or prepared for class	0.726
Shared personal feelings and problems	0.768	Socialized or partied	0.722
Dined or shared a meal	0.749	Had meaningful and honest discussions about race/ethnic relations outside of class	0.705

Cronbach's α = 0.882

Negative Cross-Racial Interaction is a unified measure of students' level of negative interaction with diverse peers.

Survey items and factor loadings:

To what extent have you experienced the following with students from a racial/ethnic group other than your own?

Had tense, somewhat hostile interactions	0.857	Had guarded, cautious interactions	0.673
Felt insulted or threatened because of your race/ethnicity	0.711	Cronbach's α = 0.788	

Conversations Across Difference measures how often students have in-depth conversations with diverse peers.

Survey items and factor loadings:

How often in the past year did you interact with someone:

From a socioeconomic class different from your own	0.667	From a country other than your own	0.473
From a religion different from your own	0.638	With a disability	0.455
Of a sexual orientation different from your own	0.604	Discuss issues related to sexism, gender differences, or gender equity	0.391

Cronbach's α = 0.695

Curriculum of Inclusion measures the number of courses a student has taken that include materials and pedagogy addressing diversity.

Survey items and factor loadings:

How many courses have you taken at this college that included the following?

Material/readings about race/ethnicity	0.829	Materials/readings about sexual orientation	0.783
Materials/readings about socioeconomic class differences	0.829	Opportunities for intensive dialogue between students with different backgrounds and beliefs	0.701
Materials/readings about gender	0.789	Materials/readings about disability	0.610
Materials/readings about privilege	0.784	Opportunities to study and serve communities in need (e.g., service learning)	0.506

Cronbach's α = 0.902

Co-Curricular Diversity Activities (Campus-facilitated) is a measure of students' involvement with institutional programs focused on diversity issues.

Survey items and factor loadings:

Since entering this college, how often have you:

Participated in ongoing campus-organized discussions on racial/ethnic issues (e.g., intergroup dialogue)	0.850	Participated in the Women's/Men's Center activities	0.769
Participated in Racial/Ethnic or Cultural Center activities	0.820	Participated in the LGBT Center activities	0.711
Attended debates or panels about diversity issues	0.792	Attended presentations, performances, and art exhibits on diversity	0.668

Cronbach's α = 0.894

Integration of Learning is a measure of student behavior that reflects integrating, connecting, and applying concepts and ideas.

Survey items and factor loadings:

How often in the past year did you:

Applied concepts from courses to real life situations	0.652	Integrated skills and knowledge from different sources and experiences	0.533
Used different points of view to make an argument	0.587	Cronbach's α = 0.615	

Habits of Mind is a unified measure of the behaviors and traits associated with academic success. These learning behaviors are seen as the foundation for lifelong learning.

Survey items and factor loadings:

Indicate how often you have experienced:

Seek solutions to problems and explain them to others	0.721	Take a risk because you felt you had more to gain	0.593
Evaluate the quality and reliability of information you received	0.703	Ask questions in class	0.537
Seek alternate solutions to a problem	0.671	Revise your papers to improve your writing	0.537
Support your opinions with a logical argument	0.670	Accept mistakes as part of the learning process	0.518
Seek feedback on your academic work	0.612	Look up scientific research articles and resources	0.501
Explore topics on your own, even though it was not required for class	0.597	Cronbach's α = 0.862	

Pluralistic Orientation measures skills and dispositions appropriate for living and working in a diverse society.

Survey items and factor loadings:

Rate yourself on each of the following traits as compared with the average person your age:

Tolerance of others with different beliefs	0.703	Ability to see the world from someone else's perspective	0.659
Openness to having my own views challenged	0.691	Ability to discuss and negotiate controversial issues	0.657
Ability to work cooperatively with diverse people	0.690	Cronbach's α = 0.810	

Civic Engagement measures the extent to which students are involved in civic, electoral, and political activities.

Survey items and factor loadings:

Since entering this college, how often have you:

Publically communicated your opinion about a cause (e.g., blog, email, petition)	0.780	Discussed politics	0.609
Demonstrated for a cause (e.g., boycott, rally, protest)	0.727	Performed community service	0.595
Helped raise money for a cause or campaign	0.701	Cronbach's α = 0.812	

Social Agency measures the extent to which students' value political and social involvement as a personal goal.

Survey items and factor loadings:

Please indicate the importance to you personally of each of the following:

Participating in a community action program	0.794	Becoming a community leader	0.672
Helping others who are in difficulty	0.704	Helping to promote racial understanding	0.656
Influencing social values	0.679	Keeping up to date with political affairs	0.536

Cronbach's α = 0.831

Academic Self-Concept is a unified measure of students' beliefs about their abilities and confidence in academic environments.

Survey items and factor loadings:

Rate yourself on each of the following traits as compared with the average person your age:

Academic ability	0.817	Drive to achieve	0.570
Self-confidence (intellectual)	0.739	Mathematical ability	0.535

Cronbach's α = 0.751