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To: Professor Richard D. Wesel
Professor of Electrical Engineering
Associate Dean of Academic and Student Affairs
Henry Samueli School of Engineering and Applied Science

Cc: Dean Jayathi Murthy, FEC Chair Ben Williams

Re: HSSEAS Diversity Climate

From: HSSEAS Committee on Diversity (MEMBERS: Prof. A. Kasko (Bioengineering), co-chair; G. Weltman, co-chair (lecturer for 183-EW); R. Ainsworth (Director, CEED); Prof. S. Brandenburg (Civil and Environmental Engineering); Prof. M. Ercegovac (HSSEAS Equity Advisor/Diversity Specialist); Miles Quinn Gibson (student representative from NSBE); Kritika Iyer (student representative, SWE); Prof. M. Kim (Computer Science); Prof. S. Kodambaka (Materials Science and Engineering); Prof. V. Manousiouthakis (Chemical and Biomolecular Engineering); R. Silverstein (Lecturer for 185-EW); Prof. J. Speyer (Mechanical and Aerospace Engineering))

This report is written in response to the charges of the committee: i) to examine the diversity climate in HSSEAS in terms of inclusiveness and fostering interaction and mutual respect across differences; and ii) after understanding the current undergraduate diversity climate in engineering, certain target areas where improvement is most needed may emerge and to develop a list of possible actions to address these areas of improvement.

The attached report presents the results of an informal study of engineering students' opinions, observations and (student) recommendations regarding the diversity climate at HSSEAS that Gershon Weltman conducted on behalf of the newly formed Diversity Committee of the UCLA Henry Samueli School of Engineering and Applied Science (HSSEAS) during the Winter 2016 and Spring 2016 quarters. The results indicate that engineering students overwhelmingly rate the diversity climate as either neutral/fair or fair/supportive (88%). Nevertheless, while the students generally do not categorize the diversity climate as unfair/unsupportive, they have identified areas in which the HSSEAS diversity climate could be further improved. Students are sensitive to the relative lack of underrepresented minorities and women, and have some specific suggestions for improvement including outreach to middle and high schools, improvements in support services and activities, greater awareness of diversity issues within the School, and adjustments to admissions and financial support policies. There are some differences in response between genders and among the several ethnicities represented, with more differences seen in the less represented ethnicities (Indian, Latin@ and Middle Eastern) than in the more represented ethnicities (Asian and European). Overall, these differences

are small compared to the similarities. It seems that by the junior and senior year, our students are responding less with respect to gender or ethnic identity and more as engineers – i.e. problem and solution oriented.

After evaluating these survey results, the HSSEAS committee on Diversity has identified a number of possible actions that may improve the diversity climate in HSSEAS. The committee has identified possible actions aimed towards i) current HSSEAS students; ii) current HSSEAS faculty; and iii) increasing the diversity of the HSSEAS student body. While the committee was explicitly directed (in the charge letter) that increasing the diversity of the HSSEAS student body was not our focus, the committee feels that this is an issue we cannot separate from our charge, in particular because student surveys revealed that the lack of diversity in the student body is a major concern with respect to the diversity climate.

Possible actions aimed towards current students:

- Continue to survey 183EW students (Engineering and Society Course)
- Add a school-wide diversity requirement to curriculum (however, this may not be possible given the committee's charge to "not increase the total number of units our students need to take")
- Increase diversity, equity and inclusion content in (some) courses; for example, increase diversity content in 183 EW courses
- Identify GE courses that address diversity/equity/inclusion issues and recommend to engineering students
- Add an online diversity module that all students must complete (similar to sexual harassment training module)
- Hold an annual town hall meeting to discuss HSSEAS diversity climate
- Hold smaller focus groups to discuss/evaluate the diversity climate (mediated by professionals)
- Schedule periodic diversity events in the school to showcase contributions of a range of engineers (i.e. SWE holds an event called Engineers for Professional Equality); give an incentive (credit) to students for attendance
- Target younger students; for example, hold diversity events for freshman during welcome week
- Add more student representatives to the HSSEAS diversity committee
- Develop and distribute diversity related materials for distribution to students during annual advising; utilize annual advising hours to increase diversity awareness by pointing out resources and asking how students feel about (and are affected by) diversity climate and issues
- Designate HSSEAS diversity committee members as point people for discussing diversity issues (students can identify and approach any diversity committee member)
- Incorporate passive programming on boards in Boelter Hall for diversity issues
- Establish a website for diversity committee, with resources for students and links to contact members of the Diversity committee
- Enhance/expand CEED (more financial resources, bigger financial commitment from school)
- Establish integrated diversity events across engineering disciplines (coordinate with student groups)
- Invite student groups outside of engineering to weigh in on climate issues across campus and how it relates/impacts engineering

- Incorporate more work in diverse teams earlier in education (1st/2nd year)
- Establish an engineering diversity symposium in which students invite speakers (supported by Dean Murthy and CEED)

Possible actions aimed towards HSSEAS faculty:

- Students groups such as NSBE have identified and voiced concerns over lack of faculty diversity, role models; recruitment of more diverse population of faculty should be a priority
- Increase faculty awareness of diversity issues in HSSEAS (i.e. diversity module for faculty or other training)
- Encourage/incentivize more faculty to participate in diversity events (dinner with professors, student groups, diversity events on campus)
- Increase faculty connections with others on campus (broader integration of faculty across campus)
- Encourage faculty to incorporate or recognize contributions/ accomplishments of URM engineers in curriculum

Possible action to increase diversity of student body:

- Provide more financial support for economically disadvantaged students
- Add/adapt recruitment events to include outreach to middle schools, high schools, emphasizing the diversity at HSSEAS and the welcoming environment?
- Investigate/analyze admissions statistics – what is the diversity of admitted versus matriculated students? Diversity in race, ethnicity, gender, nationality, economic status, (dis)ability status, sexual orientation and religion should be considered, and if possible, analysis of reasons for accepting or declining UCLA's admission offer.
- Hold/expand yield events for URM engineers (i.e. SWE stayover program, add others)
- Faculty could volunteer to work in disadvantaged schools to improve science/math education and recruit

In summary, while the survey data indicates that the HSSEAS students are generally satisfied with the diversity climate, they have identified the relative lack of underrepresented minorities and women as an area of improvement. The committee strongly recommends that the HSSEAS continue to survey and collect data on the diversity climate, and offers a broad range of possible actions to further improve the diversity climate.

White Paper

Engineering Students' Ideas about Diversity at the UCLA Henry Samueli School of Engineering and Applied Science

Gershon Weltman, Ph.D.

Henry Samueli School of Engineering and Applied Science

1. Summary

This White Paper presents the results of an informal study of engineering students' opinions, observations and recommendations regarding the diversity climate at HSSEAS that I conducted on behalf of the newly-formed Diversity Committee of the UCLA School of Engineering and Applied Science (SEAS) during the Winter 2016 and Spring 2016 quarters. The results indicate that engineering students are generally satisfied with the diversity climate, overwhelmingly rating it neutral/fair or fair/supportive. But at the same time they are sensitive to issues and in particular to the relative lack of underrepresented minorities and women, and have some specific suggestions for improvement including outreach to middle and high schools, improvements in support services and activities, great awareness of diversity issues within the School, and adjustments to admissions and financial support policies. There are some differences in response between genders and among the several ethnicities represented, with more differences seen in the less represented ethnicities (Indian, Latino and Middle Eastern) than in the more represented ethnicities (Asian and European). But in general these differences are small compared to the similarities. It seems that by the junior and senior year, our students are responding less with respect to gender or ethnic identity and more as engineers.

2. Background

The Diversity Committee was formed in the Fall 2015 quarter by SEAS Dean of Students Dr. Rick Wesel, it comprised co-chairs Prof. Andrea Kasko and myself, two student representatives and about seven members of the SEAS faculty. The Committee was charged with both surveying current student attitudes about the diversity climate at SEAS and making recommendations for its improvement.

In response to the survey charge, I volunteered to use the class I taught – Engr. 183EW Engineering and Society – as a vehicle for soliciting current student attitudes and ideas. In the Winter 2016 quarter, Engr. 183EW was one of two classes satisfying the School-wide ethics and writing requirements, in the Spring 2016 quarter it was the only one to do so. As a result, enrollment for both quarters was over 400 students from all engineering majors, primarily seniors and juniors.

In Engr. 183EW my colleague Dr. Donald Browne and I historically began each quarter by assigning a short autobiographical essay in which we asked the students to describe their ethical background and present their solution to a real or hypothetical personal ethical dilemma. The essay was primarily to give us a sense of the student's writing ability, and so was required but not graded. For the present study, we replaced the ethical dilemma portion with a set of questions covering how the student saw the current SEAS diversity climate, the associated issues, and the ways in which these climate might be improved. The essay format allowed the students to express themselves without restriction.

3. Procedure

The questions we asked were:

1. **Situation:** How would you describe the SEAS diversity climate in terms of fairness: Supportive? Non-Supportive? Neutral? Other? Briefly explain your description.
2. **Issues:** What parts of the diversity climate and/or of student awareness do you feel could use improvement?
3. **Recommendations:** Provide one or more specific suggestions for improving the diversity climate in an ethical manner.

I examined all 187 essays from Winter 2016 and 163 of about 240 randomly-selected essays from Spring 2016 for a total of 350 essays – a good sized, representative sample. I analyzed the essays in terms of total response, response by gender, and response by ethnic background. I categorized the students by gender and ethnic background based on self-identification in the essay and class roster information, and categorized their free-form answers based on my initial reading of about 25 essays. I divided the ethnic backgrounds into “More Represented Ethnicities” comprising Asian (AIS) and European (EUR) and “Less Represented Ethnicities” comprising Indian (IND), Latino (LAT) and Middle Eastern (MID). The division captured essentially all of the responses.

4. Results

The results for each question are graphed in Figures 1 through 4. Figure 1 shows the overall (N=350) results for each of the three questions, and Figures 2, 3 and 4 examine the three questions by gender and ethnicity.

4.1 SEAS Climate (Figure 1a and Figures 2a, 2b and 2c)

Overall, 87.4% of the students feel the climate is neutral/fair or fair/supportive; only 8.6% feel it is not fair or supportive, and for the most part, the negative opinions relate to the disproportionate representation of underrepresented minorities and women.

Men and women are relatively the same in their assessment of diversity climate, but a larger number of women (9.5%) than men (8.3%) rate the climate as not fair or supportive.

For the more represented ethnicities the general results are the same, but an even higher percentage of Asians (10.2%) say the climate is not fair or supportive.

The less represented ethnicities show larger differences in response. More than twice as many Latinos as the overall average (17.6%) rate the climate as not fair or supportive. Indians are notably more positive, with 94.9% rating the climate either neutral/fair or fair/supportive while barely 2.6% say it is not fair or supportive. The Middle Easterners are more like the overall average, but with such a small sample one or two responses make a big difference in percentages.

4.2 SEAS Issues (Figure 1b and Figures 3a, 3b and 3c)

Not surprisingly, over 40% of students overall identify the lack of Underrepresented Minorities (URM) and Women as the major issues in SEAS diversity, while somewhat over 20% identify Ethnic Segregation and School Neglect of diversity as key issues.

- URM issues focused on African American and Latino, but also included lower income and disabled.
- Ethnic segregation included the propensity for students to group by ethnicity, but also in a few cases noted bad ethnic joking and overt bias.
- School Neglect covered a wide range of topics, from URM Students to Disability and LGBTQ Students, and included lack of financial support both for poor and foreign students, and problems with Society as a Whole.

In the breakdown by gender, more males (about 45%) than females (about 34%) identify the URM and Women issues, while the genders are about the same on Segregation and Neglect.

The more represented ethnicities are similar in their responses, and close to the overall response levels; but more Europeans than Asians identify URM and Women as issues.

Again, the less represented ethnicities are quite different. Both Indian and Latino ethnicities identify the URM and Women issues at the 65% response level, which is 40% more than the overall level; but with regard to Segregation and Neglect they respond about the same as the overall levels. Middle Easterners differ from Indians and Latinos, but not markedly from the overall levels.

4.3 Recommendations for Improvement (Figure 1 and Figures 4a, 4b and 4c)

The leading suggestions for improvement involve early contact with minority and female students, support once they're here, and courses or modules in SEAS. Specifically, the overall recommendations favor Outreach, more Support Services and Groups and increased Diversity Awareness; about 32% of students recommend each of these as good things to do. Diverse Teams and Projects and revised Admission and Tuition policies are recommended by 12% and 17.4% of students, respectively.

- Outreach is focused on visits or other interactions with Middle Schools and High Schools, with particular emphasis on attracting lower income and women students to engineering at early stage.
- Recommendations for improved support services generally recognize the existing support services, but say there could be more Multi-Cultural Activities, more school-wide awareness of student Mental/Physical Issues, more Discussion Forums where issues could be identified and publicized, and even Language Classes for both foreign students and foreign-born instructors.
- Recommendations for improved Diversity Awareness include Faculty Awareness, specific Diversity Courses with some suggestions that SEAS adapt the Letters and Science diversity requirement, Diversity Materials in engineering courses, and better use of the required Humanities Courses
- The Teams and Projects recommendations focused on more Project Oriented activities involving Multiple Ethnicities, most frequently through Random Assignment to overcome ethnic grouping; a number of responses said this would be most effective in the Early Years.
- The Academic and Tuition category included recommendations for Expanded Criteria for admission that would not be so heavily focused on Grade Point Averages and Standard Exams, and increased Financial Aid, especially for International Students. Most of the students who recommended changes in admissions emphasized that these would have to be ethical and not administered in a way that would admit unqualified students, although the criteria for qualification might be reexamined.

Males and females are about the same on Outreach, while more males than females (35.1% v. 23.0%) recommend increased Support activities and more females than males (39.2% v. 32.2%) recommend more Awareness. Slightly more females recommend diverse Teams, and slightly more males recommend changes in Admissions and Tuition policies.

The more represented ethnicities again closely resemble the overall statistics, but with more Asians than Europeans (31.2% v. 24.5%) recommending outreach, and more Europeans than Asians recommending (38.3% v. 31.0%) recommending increased awareness.

And also once again, the less represented ethnicities are different. While Outreach and Awareness are about the same as the overall levels, all three groups are notably higher in recommending more Support, with Latinos reaching a 52.9% response level, 62.3% above the overall level, and the groups are higher in recommending changed Admissions and Tuition, with Latinos 69% more than the overall response rate.

5. Figures

The following pages present the figures referenced in the above.

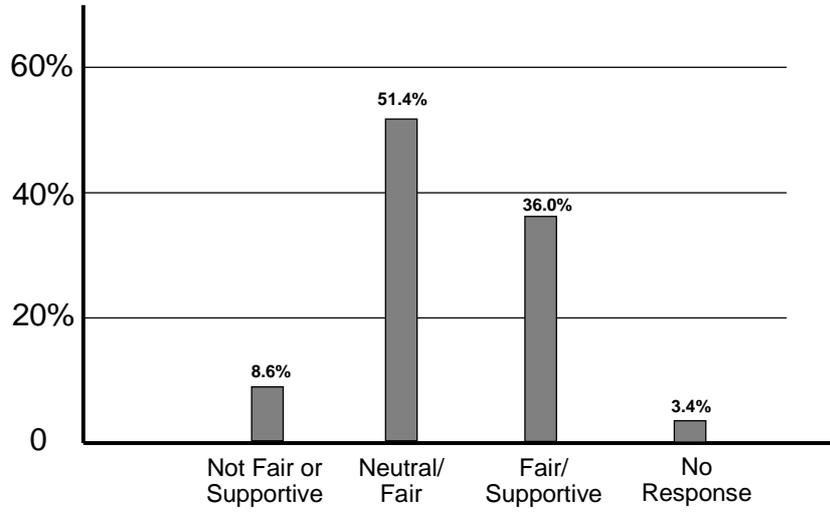


Figure 1a SEAS Diversity Climate for All 350 students

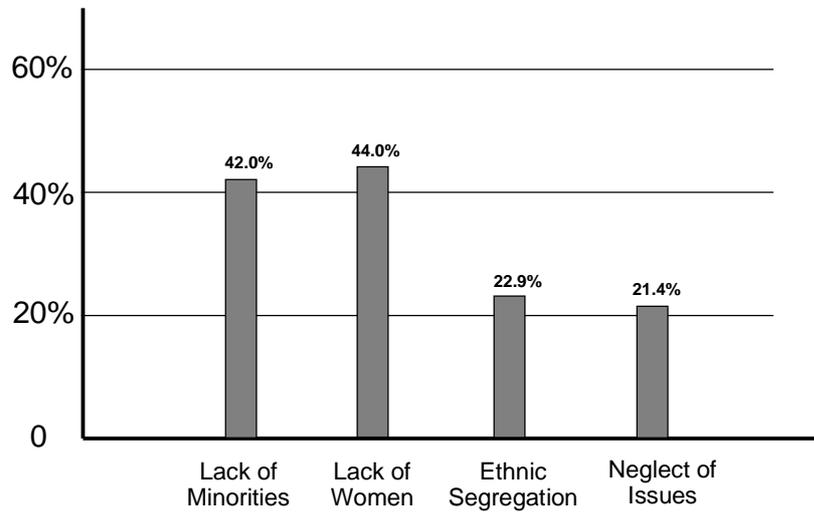


Figure 1b SEAS Diversity Issues for All 350 Students

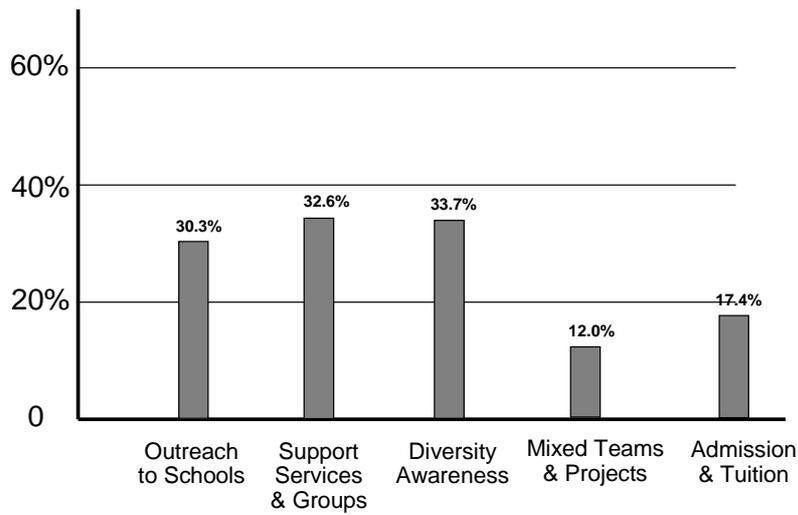


Figure 1c Recommendations for Improvement for All 350 Students)

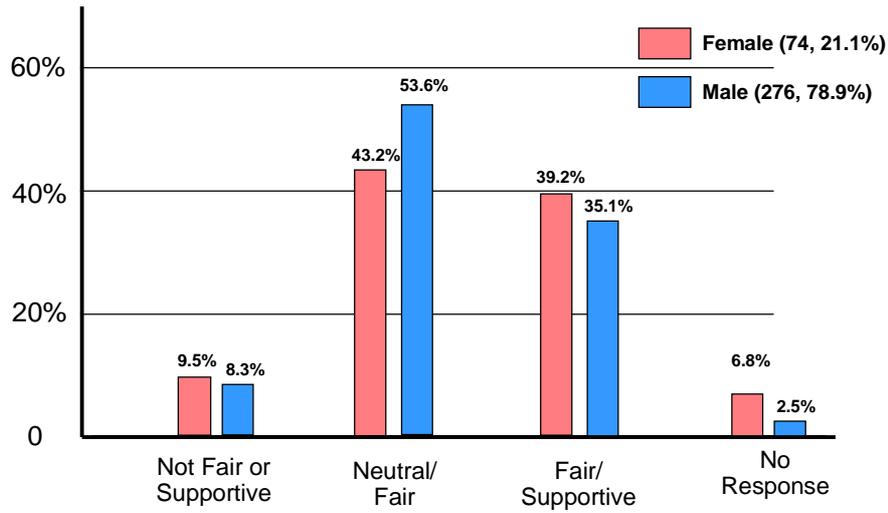


Figure 2a SEAS Diversity Climate by Gender

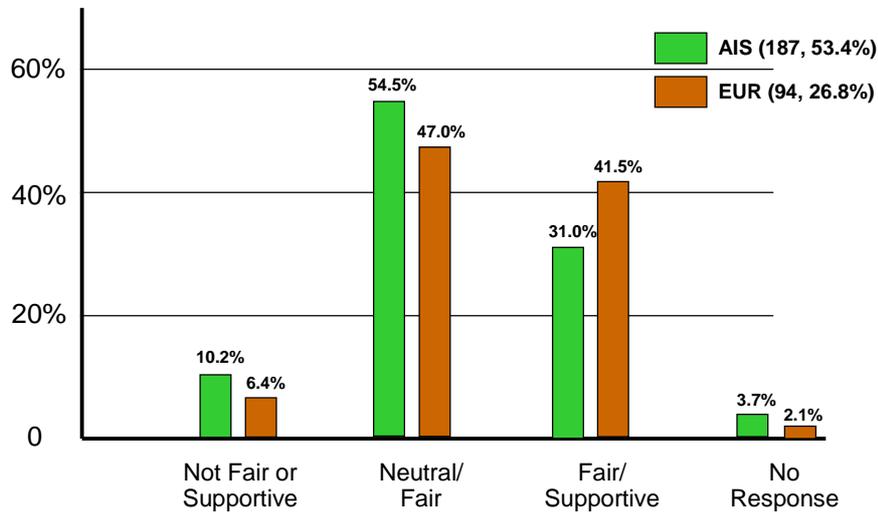


Figure 2b SEAS Diversity Climate by Most Represented Ethnic Background

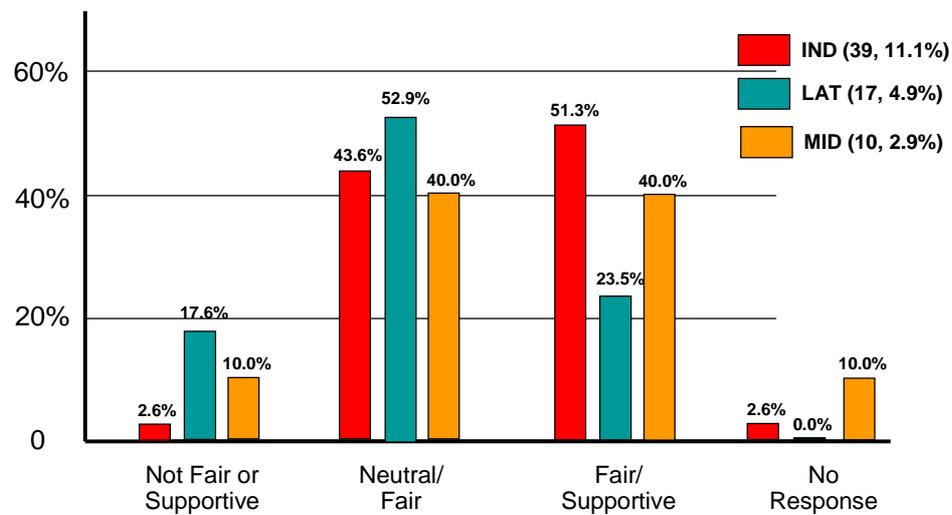


Figure 2c SEAS Diversity Climate by Less Represented Ethnic Background

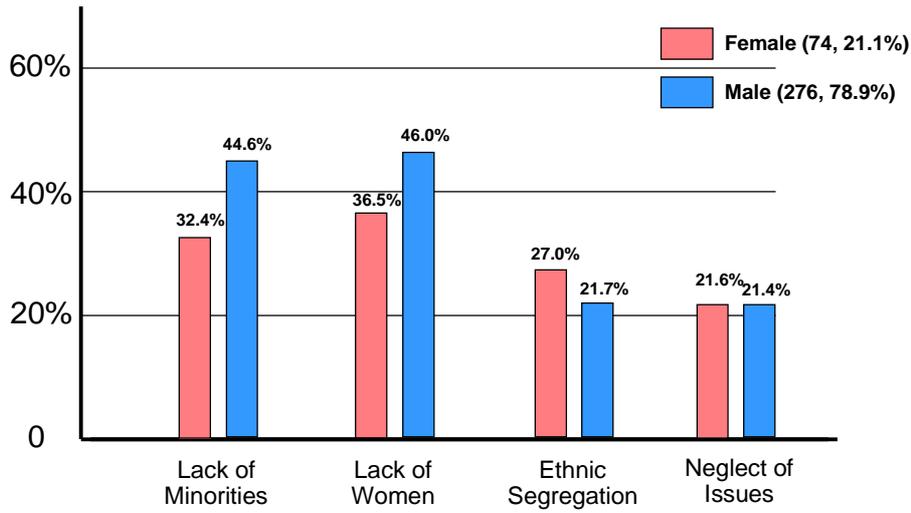


Figure 3a SEAS Diversity Issues by Gender

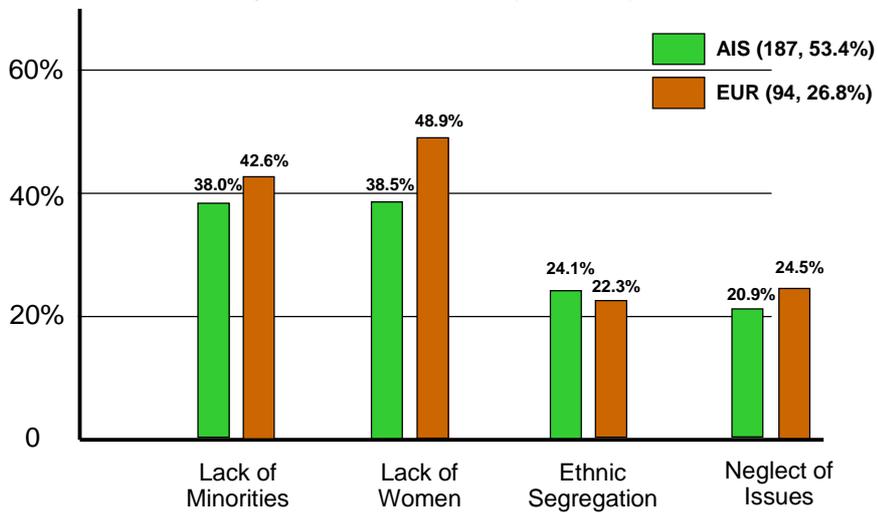


Figure 3b SEAS Diversity Issues by Most Represented Ethnicities

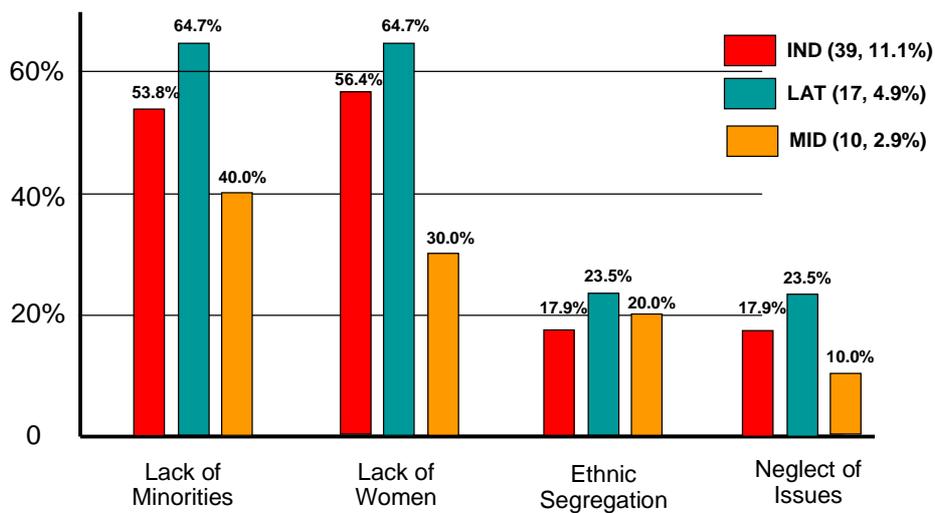


Figure 3c SEAS Diversity Issues by Less Represented Ethnicities

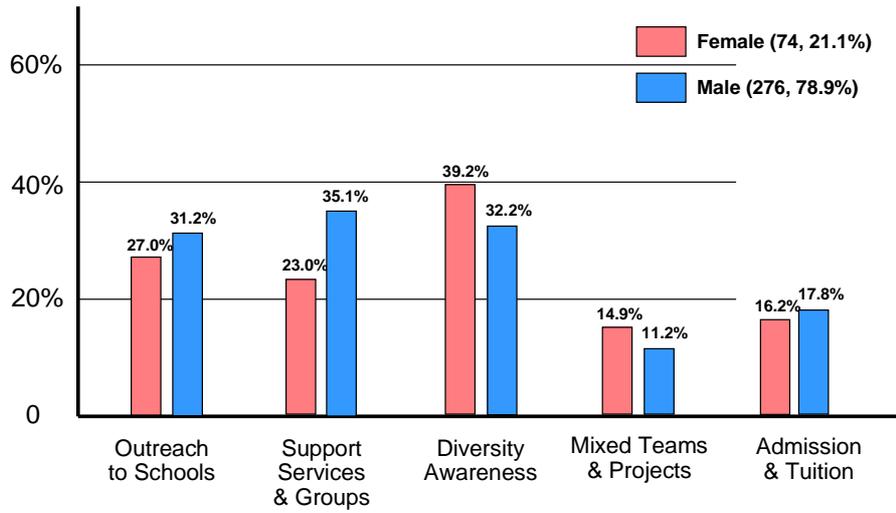


Figure 4a SEAS Diversity Recommendations by Gender

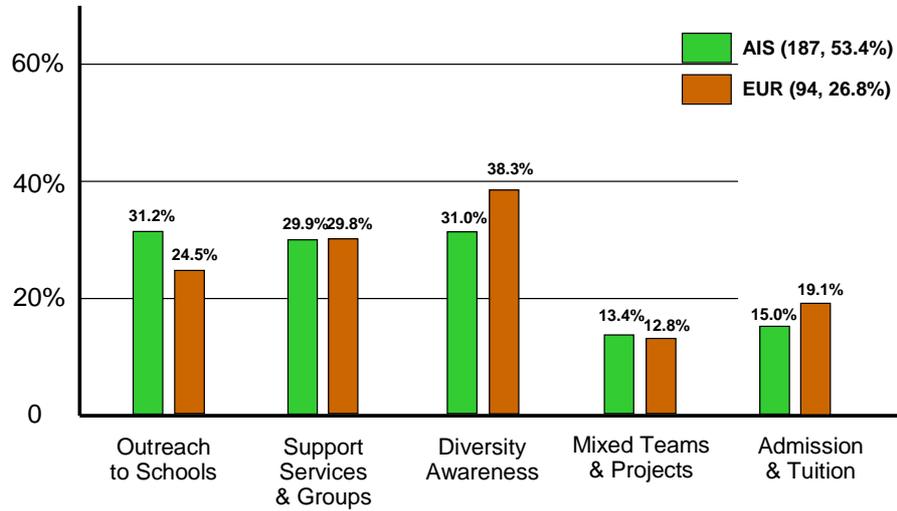


Figure 4b SEAS Diversity Recommendations by More Represented Ethnicities

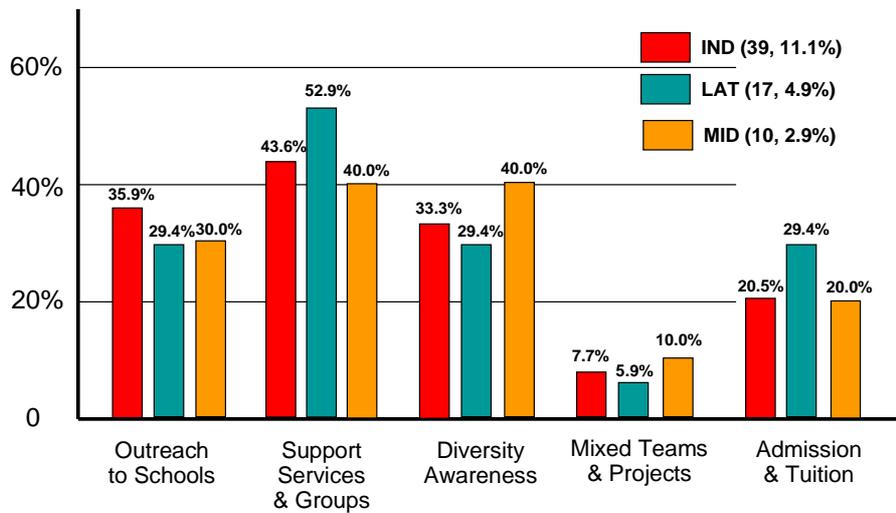


Figure 4c SEAS Diversity Recommendations by Less Represented Ethnicities