Assessing the Academic Work Environment for Science and Engineering and Social Science Faculty at the University of Michigan in 2006: Gender, Race, and Discipline in Department- and University-Related Climate Factors
Executive Summary

UM ADVANCE Program
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INTRODUCTION

Climate Survey Overview

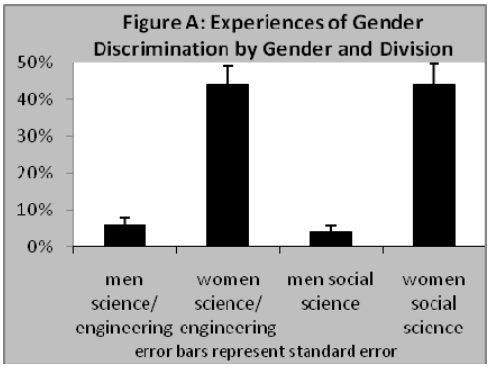
During the fall of 2001, staff at the Institute for Research on Women and Gender (IRWG) administered the University of Michigan Survey of Academic Climate and Activities. In fall 2006, a second survey was conducted to assess change in the campus work environment for scientists and engineers at the completion of the five-year NSF supported period of UM's ADVANCE Program. This study was a cross-sectional comparison with the 2001 survey data.

This report is a companion to the report recently released by the UM ADVANCE Program, *Assessing the Academic Work Environment for Science and Engineering Faculty at the University of Michigan: 2001 and 2006*. That report assessed data from UM science and engineering faculty in 2001 and 2006 about their experiences of their work environment. This report draws on the same 2006 data for science and engineering faculty and comparable data collected from social science faculty at the same time to examine faculty experiences of the climate at the University, as well as at the department, levels. It describes gender differences (differences between men and women) and racial-ethnic differences (differences between white and faculty of color, including Asian/Asian American faculty) within two disciplinary areas: science and engineering and social science.

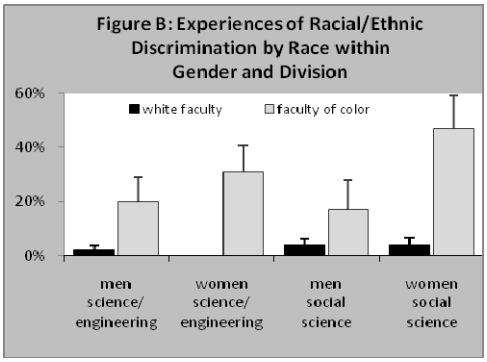
FINDINGS FROM THE 2006 SURVEY

University Climate

The survey asked several questions regarding institutional climate that faculty may experience on the UM campus: overheard disparaging comments about women and men and about racial-ethnic minorities, gender and racial-ethnic discrimination, and unwanted and uninvited sexual attention.



White women in both discipline groups reported hearing more **disparaging comments about women** than white men reported. And all women's rates of **felt gender discrimination** were relatively high. They also reported higher levels of gender discrimination than their male counterparts (see Figure A).



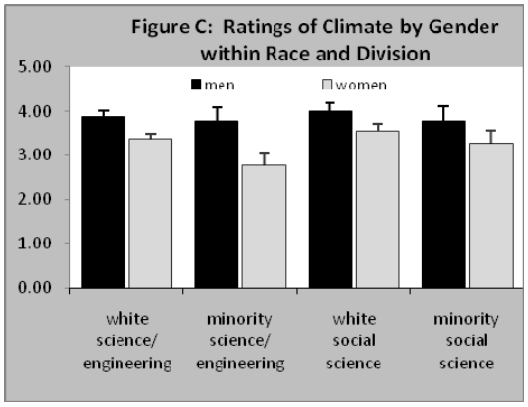
There were no differences in reported experiences of **unwanted sexual attention** between any groups and mean levels of experiences were relatively low for all women.

There were no statistically significant differences among any of the groups on overhearing **disparaging comments about racial-ethnic minorities**. Female faculty of color in both discipline groups reported experiencing more **racial-ethnic**

discrimination than their white female counterparts (see Figure B). The same was true for male faculty of color in the sciences and engineering compared to white male faculty in the sciences and engineering.

Department Climate

The department climate measures assessed climate issues specifically related to gender and/or race-ethnicity (tolerant climate, gender egalitarian atmosphere, tokenism, and department chair committed to racial-ethnic diversity), as well as the work environment more generally (positive climate, scholarly isolation, felt surveillance, department chair as fair, and department chair creates positive environment).



In the sciences and engineering, both white women and women of color reported a less positive overall climate than their male counterparts. Women of color in the sciences and engineering also reported a less positive overall environment than white women scientists and engineers.

White social science women had lower mean scores on overall climate than white social science men.

<u>Department Climate Assessments Related to Gender and Race-Ethnicity</u>

In the sciences and engineering, both women of color and white women reported a less positive environment than their male counterparts in three of the four areas assessed here (less tolerant climate, less gender egalitarian atmosphere, and more tokenism). And analysis of the fourth area (department chair committed to racial-ethnic diversity) revealed significantly lower scores for women of color than men of color.

There were fewer differences in parallel comparisons among social science faculty. Both racial-ethnic groups of women faculty reported a less gender egalitarian atmosphere in their departments than their male counterparts; and white women social scientists also reported a less tolerant climate than white men social scientists.

Looking within gender and disciplinary groups we found that both groups of women of color reported more tokenism than white women; women of color in the sciences and engineering were also less likely to report that their chairs were committed to racial-ethnic diversity than white women in the sciences and engineering. And men of color in the sciences and engineering reported more tokenism than their white male counterparts.

<u>Assessments Related to General Department Climate</u>

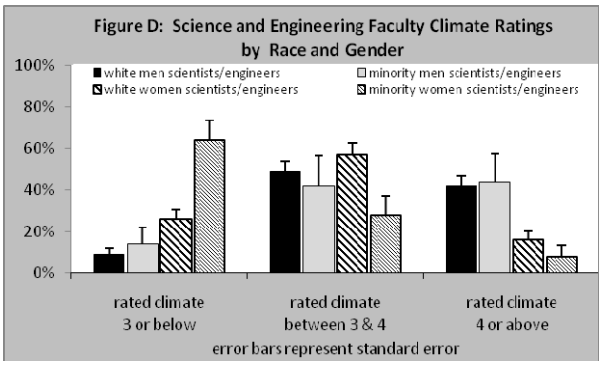
Women of color and white women science and engineering faculty reported a less favorable climate than their male counterparts in four of the five areas assessed (positive climate, scholarly isolation, felt surveillance, and department chair as fair); minority women scientists and engineers also reported a lower mean score on the fifth variable (department chair creates positive environment) than their male counterparts.

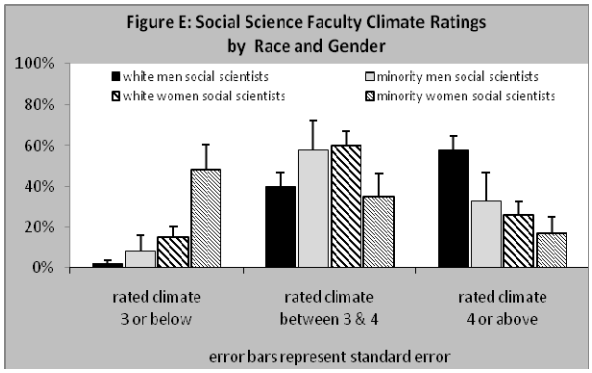
The only gender differences among the social science faculty were among the white faculty. White women reported less positive mean scores than did their male counterparts in three of the areas (scholarly isolation, felt surveillance, and department chair as fair).

Looking within disciplinary and gender groups, we found few differences by race. White women in the sciences and engineering reported more positive mean scores than women of color in the same disciplines on the two department chair scales (chair is fair and creates positive environment).

Do These Differences in Climate Matter?

It is difficult to address the question of the magnitude of a difference found on a survey scale. One way is to look at the distribution of scores along the scale. We find a similar pattern within each discipline, with far more men than women rating the climate above 4 and far more women (especially women of color) than men rating the climate below 3 (see Figures D and E). On the basis of these findings, it seems reasonable to conclude that the difference in felt climate (between majority and minority women scientists and engineers and social scientists and their male comparison groups) is substantial. The difference between majority and minority women is also worth noting. Further analyses suggest an even more negative climate for women and faculty of color compared to white men when assessing climate scores specifically related to gender and race-ethnicity.





Career Satisfactions

Another way to evaluate the importance of the climate differences is to examine career satisfaction. Career satisfaction was assessed with 12 items that were also combined to create an overall career satisfaction score. White women and women of color in the sciences and engineering reported overall lower career satisfaction than their male counterparts. There were no differences among social science faculty on this variable.

In the sciences and engineering, white women reported lower satisfaction than white men in four of the specific areas (opportunity to collaborate with other faculty, amount of social interaction with department members, level of intellectual stimulation in day-to-day contacts with faculty colleagues, and sense of contributing to disciplinary theoretical developments). Similarly, women of color in the same disciplines reported lower satisfaction than their male colleagues in five areas (amount of social interaction with department members, sense of being valued for teaching and research, level of intellectual stimulation in day-to-day contacts with colleagues, and balance between professional and personal life). These same women also had lower means scores on sense of being valued for teaching by colleagues than white women in the sciences and engineering.

The only differences found for faculty in the social sciences was comparing white women and men; white women reported less satisfaction in two areas (level of intellectual stimulation in day-to-day contacts with colleagues and balance between professional and personal life).

Summary of Findings

Climate

As we found in the first report assessing experiences of science and engineering faculty only, the climate in 2006 appears worse for women than for men, and is also worse for faculty of color than white faculty, especially in the sciences and engineering.

In both disciplinary arenas:

- White women reported hearing more disparaging comments about women than white men did.
- Women reported higher rates of gender discrimination than counterpart men.
- Female faculty of color reported more racial-ethnic discrimination that their white female counterparts.
- Women reported a less positive department climate than men.

In the sciences and engineering:

- Women of color reported a less positive overall climate than white women.
- Men of color reported more racial-ethnic discrimination and tokenism than white men.

In the social sciences:

- Women reported a less gender egalitarian atmosphere than men.
- White women's reports were less positive for overall climate than white men's.
- Women of color indicated more tokenism than white women.

Career Satisfactions

- Overall career satisfaction ratings were lower for women scientists and engineers compared to men scientists and engineers.
- Overall career satisfaction was not different for women in the social sciences compared to their male counterparts.

Job Satisfaction and Intention to Leave

We next examined the relationship between climate ratings and faculty members' level of job satisfaction for faculty in the two disciplinary domains, again looking at gender and race-ethnicity differences within those disciplines.

Science and Engineering Faculty

For white men and white women, overall career satisfaction and overall climate were correlated positively with job satisfaction and negatively with intention to leave. Disparaging comments about men also mattered for white men; disparaging comments about women and gender discrimination were significantly correlated with the outcome measures for women.

For faculty of color overall career satisfaction was positively correlated with job satisfaction; overall climate ratings were correlated positively with job satisfaction and negatively with intention to leave. For men of color, racial-ethnic discrimination was negatively associated with job satisfaction and disparaging comments about racial-ethnic minorities were positively associated with intending to leave. Disparaging comments about women were positively correlated in the expected directions with both job satisfaction and intention for women of color.

Social Science Faculty

For white social science faculty overall career satisfaction and overall climate ratings were also correlated positively with job satisfaction and negatively with intention to leave. Disparaging comments about women were associated with both outcome measures and racial-ethnic discrimination was associated with intention to leave for white men. For white women, gender discrimination was associated with intention to leave.

There were fewer significant correlations when assessing mean scores of male faculty of color in the social sciences. Overall career satisfaction was associated with both job satisfaction and intention to leave (in the expected directions) for men of color. In the case of women of color, only gender discrimination was negatively associated with job satisfaction; however, overall career satisfaction, overall climate, disparaging comments about women, disparaging comments about racial-ethnic minorities and gender discrimination were all associated with intention to leave.

CONCLUSIONS

The overall findings from the survey indicate that the climate is relatively positive for white male faculty in both disciplinary areas, but less so for white women and faculty of color—especially faculty of color in the sciences and engineering. In reviewing the findings related to race-ethnicity, it is important to note that the sample size for faculty of color was relatively small (especially for the social science faculty), and that with the statistical power of a larger sample more differences between white faculty and faculty of color might have emerged.

It may be important to note that many of the same factors influence different groups of faculty members' job satisfaction and intention to leave. This pattern—of the same climate features benefiting different groups of faculty (groups differing in race, gender and discipline)—suggests that improvements in the climate are likely to benefit all faculty, rather than benefiting some at the expense of others.

It should be reiterated that the climate survey reports aggregate data and only represents experiences for these groups of faculty in general. Specific experiences differing from the overall pattern, for example in a particular department, cannot be revealed with these data. Moreover, these analyses are based on experiences of UM science and engineering faculty in the 10 campus schools that have sciences or engineering faculty as well as the social science faculty also in those schools. UM faculty in the humanities and in many professional schools (e.g., Business, Law, Architecture, Music), were not surveyed for this study. Thus, findings from this study cannot be generalized to the entire UM faculty.

However, the lack of clear and consistent findings of disciplinary differences for science/engineering and social science faculty in experiences of the climate, especially for white faculty, is consistent with results of the ADVANCE Program's 2004 climate study of Ph.D. students, and suggests that some aspects of the race and gender climate may well be quite pervasive across disciplines. Moreover, the significant findings of a relationship between faculty ratings of the climate and their job satisfaction and intention to leave suggest that climate issues are critical factors for the University to address. It is for this reason that the ADVANCE Program has begun to expand its initiatives in the area of the climate and retention, as well as beyond the science and engineering fields. Given the clear relationship between faculty ratings of the climate and career satisfaction with their overall satisfaction and intention to leave UM, it is important to redouble our efforts to improve the campus climate for all faculty.