

**Assessing the Academic Work Environment for Science and Engineering
Tenured/Tenure Track Faculty at the University of Michigan
2001, 2006 and 2012:
Gender and Race in Department- and University-Related Climate Factors**

Executive Summary

UM ADVANCE Program

November, 2013

INTRODUCTION

During the fall of 2001, staff at the Institute for Research on Women and Gender (IRWG) administered the first University of Michigan Survey of Academic Climate and Activities. In fall 2006, a second cross-sectional 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. The 2006 study suggested little change in the climate for science and engineering faculty and a consistent pattern of a more negative climate for women faculty and faculty of color (especially female faculty of color). There were, however, indications that some things were improving. In the case of white women, the most dramatic change was the significant decrease in reports of unwanted sexual attention over time. In addition, for all faculty except women of color, experiences of scholarly isolation were lower.

2012 CLIMATE SURVEY OVERVIEW

Most recently, in the fall of 2012, a third survey was conducted. As previously, this study was a cross-sectional comparison with the previous two studies. One of our goals for this climate study was again to observe how scientists and engineers experience their working environments at UM. Thus, this report is limited to assessment of the work environment for science and engineering tenure track faculty at the three points in time: 2001 (Time 1), 2006 (Time 2), and 2012 (Time 3)¹. The total number of science and engineering faculty respondents for 2012 was 626 (36% response rate) including 452 male and 174 female faculty, and 501 white faculty and 125 faculty of color. The first climate study surveyed women and men scientists and engineers as well as women social scientists (N=235 for science and engineering faculty, 39% response rate; and N=73 for social scientists, 47% response rate). The same design was incorporated in the

¹ A subsequent report will assess results of analyses by discipline (science and engineering, social science, and arts and humanities) in the 2012 data.

first follow-up study, and included men social scientists as well (N=276 for science and engineering faculty, 31% response rate; and N=143 for social science faculty, 36% response rate). At the third follow-up, arts and humanities faculty were also surveyed (N=194 for arts and humanities faculty, 48% response rate; and N=265 for social scientists, 34% response rate).

All analyses were conducted using appropriate weights to address differences in response rates by race-ethnicity, gender and school. Moreover, a variable assessing experience (age, years at UM, year of degree, and rank) was used as a control in all analyses; thus any statistical finding cannot be explained by differences on these dimensions.

FINDINGS FROM THE CLIMATE 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 about racial-ethnic minorities, gender and racial-ethnic discrimination, and unwanted and uninvited sexual attention.

Both groups of white faculty reported overhearing fewer disparaging comments about women at Time 3 compared to Time 2 (and compared to Time 1 in the case of white women). Men of color also reported fewer instances at both Time 2 and Time 3 compared to Time 1. Reports by women of color were unchanged over time. And white women reported overhearing more disparaging comments about women compared to white men at all three time points.

Rates of *felt gender discrimination* for women were also relatively high at all three times and significantly higher than those for men (38% for white women and 31% for women of color at Time 3; comparable rates were 4% for white men and 7% for men of color). There were no differences in experience of gender discrimination between the two groups of women. White women reported significantly lower levels of *unwanted sexual attention* at Time 2 and Time 3 compared to Time 1. Rates were low across time for the other three groups of faculty. White women reported higher levels of unwanted sexual attention than white men at both Time 1 and Time 3.

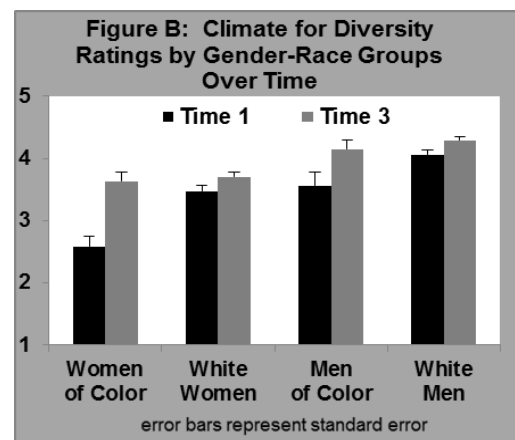
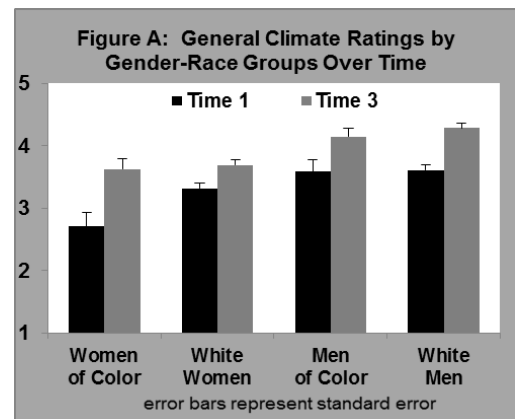
Overall among scientists and engineers, faculty of color reported hearing more *disparaging remarks about racial-ethnic minorities and/or religious groups* than did white faculty at Time 1, but not at the later data collection points. Comparison by racial-ethnic groups at Time 3 revealed that underrepresented minority faculty were more likely than Asian/Asian American faculty to report overhearing disparaging comments about racial-ethnic minorities and/or religious groups.

White faculty generally reported very low levels of *racial-ethnic discrimination* (2% for both men and women at Time 3) and their reported mean rates were not significantly different over time. Rates for faculty of color were higher (18% for men of color and 26% for women of color at Time 3) and, again, did not differ significantly over time. Moreover, male faculty of color were significantly more likely to report some form of racial-ethnic discrimination than white men at all three points in time.

DEPARTMENT CLIMATE

The department climate was assessed with two measures. One was a composite of elements related to the *general climate* (positive climate, scholarly isolation, felt surveillance, department chair as fair and department chair creates positive environment) and the other reflected the *climate for diversity* (tolerant climate, gender egalitarian atmosphere, tokenism, and department chair committed to racial-ethnic diversity).

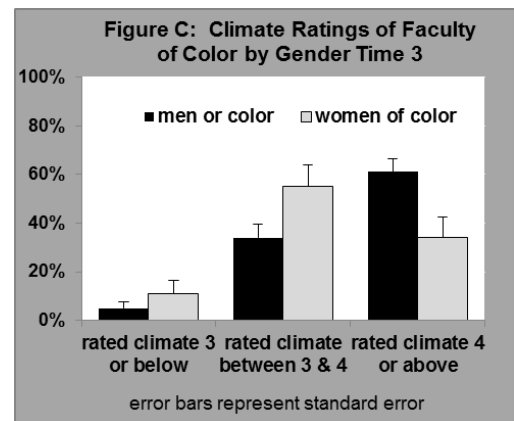
General Department Climate: Women of color and white men and women rated the general department climate more positively at Time 3 compared to the previous two data collections (see Figure A). The ratings for men of color were not significantly different over time, but were relatively high at all three data points. White men reported a more positive department climate compared to white women at all three data points; men of color reported a more positive climate than women of color at Time 1 and Time 2, but not at Time 3. Women of color reported a less positive department climate than white women at Time 1 and Time 2.



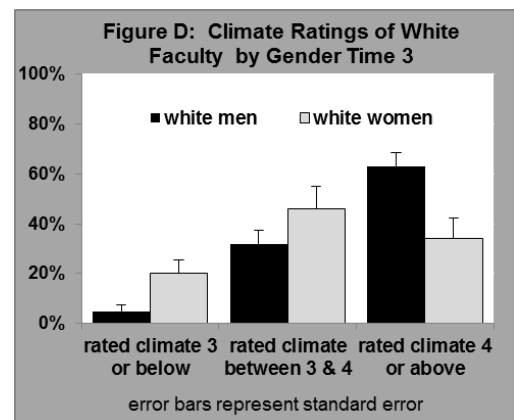
Climate for Diversity: All four groups of faculty reported a more positive department climate for diversity at Time 3 compared to both earlier data collections (See Figure B). Men faculty rated the climate for diversity higher than their female colleagues at all three time points as did white men compared to men of color. White women rated the climate for diversity more positively than women of color at Time 1 and Time 2; there was no difference between these groups of women faculty at Time 3.

DO THESE DIFFERENCES IN CLIMATE MATTER?

It is always difficult to address the question of the meaning of a difference found on a survey scale. One way of getting at this is to examine the distribution of a combined score (general climate and climate for diversity) along the scale. The distributions of ratings do overlap, but they are also quite different (see Figures C and D) and suggest that the difference in felt climate (between white and minority women scientists and engineers and their male comparison groups) persists.



Nevertheless, when we compare these data to those from the 2001 and 2006 surveys, we see improvement in the felt climate for women. In fact, the percent of women of color and white women who rated the climate 3 or below decreased significantly from Time 1 to Time 3; the same was true for women of color comparing their ratings at Time 2 to Time 3. Moreover, the percent of white women (and white men) who rated the climate 4 or above also increased significantly from



Time 2 to Time 3. There were no differences when we compared the over time ratings for men of color.

CAREER SATISFACTION

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. All groups, except men of color, reported significantly higher overall career satisfaction at Time 3 compared to Time 1. There were gender differences for both racial-ethnic groups. White men reported

significantly higher overall career satisfaction compared to white women at Time 2 and Time 3. There was no difference in overall career satisfaction comparing men and women of color at Time 3.

At Time 2 and Time 3 we also asked respondents two questions about their *intention to stay at UM*: how much you would like to stay at UM for your entire career, and how often do you think about leaving UM. Both groups of women and white men were less likely to indicate a desire to leave UM at Time 3 compared to Time 2. There was no over time difference in the mean ratings for men of color. White men were less likely than their female counterparts to report a desire to leave UM at Time 2 and Time 3.

RELATIONSHIP OF CLIMATE AND SATISFACTION

Career satisfaction was significantly and strongly positively correlated with overall job satisfaction for the four groups of faculty at all three time points. The same was true in the case of overall climate (a measure combining general climate and climate for diversity scales) except for women of color: overall climate was not related to overall satisfaction at Time 3 for this group.

Correlations of desire to leave UM with the same climate measure produced results similar to those for career satisfaction. The intention to leave UM was strongly negatively correlated with career satisfaction and the overall climate score for both groups of white faculty at Time 2 and Time 3. Results were similar for men of color at Time 3; however, only climate was negatively associated with a desire to leave at Time 2 for this group of faculty. Neither variable was significantly associated with a desire to leave UM in the case of women of color.

SUMMARY OF FINDINGS

The data suggest real improvement in faculty experiences in their departments, and less change in terms of measures of general University climate. Areas where there has been little change include:

- women continued to report more felt gender discrimination than their male colleagues;
- rates of felt racial-ethnic discrimination for faculty of color remained static over time and men of color continued to report felt racial-ethnic discrimination at a higher rate than white male faculty;
- men continued to report a more positive department climate for diversity compared to women;
- white men continued to report higher job and career satisfactions than white women.

Many findings do point to significant positive change comparing Time 3 to earlier faculty ratings:

- white women reported fewer instances of overhearing disparaging comments about women in 2012 than in 2001 and 2006;
- faculty of color reported fewer instances of overhearing disparaging comments about racial-ethnic minorities in 2012 compared to 2001;
- unwanted sexual attention continued to be lower for white women in 2012 than in 2001;
- all but men of color rated the general department climate more positively in 2012 than 2001 (the ratings for men of color were not different over time, but were high at Time 1);
- all groups reported significantly higher mean ratings of the department climate for diversity in 2012 than 2001 and 2006;
- overall career satisfaction was higher in 2012 than in 2001 for all but men of color (the ratings for men of color were not different over time, but were high at Time 1).

CONCLUSIONS

These data provide clear indications that some things have improved over time for both women and men science and engineering faculty. The overall findings from the survey indicate that white male science and engineering faculty continue to enjoy a positive and, in some areas, improved department climate. They also reported higher satisfaction and decreased interest in leaving UM. The overall department climate showed improvement for white women as well by Time 3. Moreover, the rate of reported experience of sexual harassment continued to be significantly lower for white women than reported levels in 2001 (as was true in 2006). Career satisfaction and overall satisfaction were also higher for white women in 2012 and they reported less desire to leave the University.

The situation for women of color also appeared to be better in some areas. We found no change in their experience of racial-ethnic discrimination; however, they reported a more positive general department climate and department climate for diversity at Time 3 and their combined overall department climate rating was not different from white women at this latest data collection point (as it had been earlier). Similar to white women, women of color indicated higher career satisfaction and higher overall satisfaction in 2012 compared to earlier reports and they reported less desire to leave the University. The results for male faculty of color suggested some modest improvement. Specifically, they report a better overall department climate. However, reported experiences of racial-ethnic discrimination did not change over time (as was true for women of color). Unlike other faculty, career satisfaction did not improve for male

faculty of color nor did their overall satisfaction or their desire to leave the University; however, average ratings on these items were high at Time 1 for men of color.

Despite the positive changes noted, the data suggest that there continue to be clear and consistent gender and racial-ethnic differences concerning some aspects of the climate at both the University and the department levels indicating a more negative climate for women science and engineering faculty than for men as we found in the earlier studies. In the same way, race-ethnicity differences on measures directly addressing race and ethnicity revealed a similarly more negative climate for science and engineering faculty of color. In all instances these differences cannot be accounted for by differences in experience (e.g., rank, years at UM) or by school.

Overall, the findings from the 2012 data suggest a real improvement in the climate for all four faculty groups. The most striking change was at the department level; faculty reported a more positive and welcoming department climate in terms of both general aspects as well as those specifically related to gender and race-ethnicity. Given the clear relationship between science and engineering faculty ratings of the climate and career satisfaction with their overall satisfaction and desire to leave UM, this is encouraging news. Clearly transforming the work environment for science and engineering faculty is a slow process. However, the findings from this most recent study suggest that the efforts are beginning to yield positive results and it is critical that we maintain the momentum we have now established.