

**Assessing the Academic Work Environment for Science and Engineering Faculty
at the University of Michigan in 2001 and 2006: Gender and Race in Retention-
Relevant Career Experiences**

UM ADVANCE Program

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INTRODUCTION

This is the third in a series of reports derived from the fall 2006 study of the academic climate on the University of Michigan campus. The first report assessed data from UM science and engineering faculty in 2001 and 2006 about their experiences of their work environment. The second report assessed the same variables for science and engineering, as well as social science faculty, for 2006 only. This report draws on the same data as that for report one, that is, responses from science and engineering faculty to the 2001 and 2006 climate survey. For detailed information about the study and data collection procedures, please refer to this initial report¹.

The purpose of this report is comparison of the gender and race differences for science and engineering faculty in career experiences generally thought to be related to faculty career satisfaction and retention at the two data collection points: Time 1 (2001) and Time 2 (2006). These include opportunities for leadership and influence, service, allocation of resources, recognition, and family responsibilities.

Sample

The sample of tenure track faculty surveyed for this study and reported on here included the following groups of faculty with paid appointments at the University of Michigan-Ann Arbor as of August, 2006:

- All female tenure track science and engineering faculty at or above the rank of assistant professor (N=352).
- Random subsample of male tenure track science and engineering faculty at or above the rank of assistant professor, stratified by race and rank (N=620).

Due to the small number of faculty of color in academic science and engineering at the University of Michigan, the ADVANCE Evaluation Advisory Committee² recommended oversampling faculty of color, both to yield numbers large enough to permit analysis by race-ethnicity, and to protect confidentiality. We therefore included nearly all faculty of color from underrepresented groups (African Americans, Latinos, and Native Americans) in the sample and a substantial random sample of the Asians and Asian Americans. A total of 208 faculty of color were surveyed.

The sample was drawn from all science and engineering faculty on the UM campus. This included faculty from the three largest schools with science and engineering faculty (Engineering, LSA, and Medicine) as well as seven smaller schools (Dentistry, Information, Kinesiology, Natural Resources and Environment, Nursing³, Pharmacy, and Public Health).

Across the two subsamples, male faculty were older and had been at UM longer than female faculty; they also received their highest degree longer ago and were less likely to have been hired within the past 10 years. Similarly, men were more likely to be full professors than women faculty. We found similar differences when comparing the white tenure track faculty with tenure track faculty of color. White faculty were older than the faculty of color; they had also been at UM longer and had received their degrees

¹ <http://sitemaker.umich.edu/advance/faculty-climate>

² Members of the Evaluation Advisory Committee are Deborah Carter (Education), Mark Chesler (Sociology), Mary Corcoran (Political Science, Public Policy, Social Work, Women's Studies), Paul Courant (University Librarian and Dean of Libraries, Public Policy, Economics), Ann Lin (Public Policy, Political Science), Richard Gonzalez (Psychology), Janet Lawrence (Higher Education), Valerie Lee Education), and Yu Xie (Sociology).

³ The demographic makeup of the Nursing school is quite different from the other schools. However, because preliminary analyses excluding Nursing school respondents were comparable to analyses in which they were included, we decided to keep respondents from all schools in the analysis sample.

earlier. Faculty of color were also more likely to have been hired in the last 10 years. White faculty were more likely to be at the rank of full professor. Given these differences, a composite variable assessing experience was constructed as the mean of age, years at UM, year of degree, and rank. This measure of experience was used as a control in all analyses and means that any statistical finding reported here cannot be explained by simple differences in age, years at UM, year of degree, or rank.

Data Analysis Strategy

In this study, we assessed experiences of women scientists and engineers on the tenure track; in addition, we assessed race-ethnicity by comparing science and engineering faculty of color with white faculty. Preliminary analyses were conducted comparing Asian and Asian American faculty to underrepresented minority faculty that revealed few significant differences. Given this, and the small total number of faculty of color in the sample, we combined Asian and Asian American faculty with underrepresented minority faculty in these analyses. Analyses were completed using analyses of variance (ANOVAs) on scales and items from the survey to assess differences by gender and race-ethnicity, comparing mean scores of white and minority women scientists and engineers, and white and minority men scientists and engineers at both data collection points (Time 1 and Time 2).

Analysis of variance is a statistical procedure that apportions variation in people's scores on a variable to different factors—in this case, their membership in one of the four faculty groups (white women scientists and engineers, minority women scientists and engineer, white men scientists and engineers, and minority men scientists and engineers)—at Time 1 and Time 2. This design allows for a three-way ANOVA (gender X race X time). When the ANOVA indicated an overall significant difference in one of those individual or combined factors, we pursued relevant planned comparisons between appropriate groups. In this report we discuss the comparisons by gender or race, when overall effects were important, and for gender within race, or race within gender, when more complex findings were indicated. This is a relatively conservative way to minimize error when conducting multiple tests.

When assessing frequency data (numbers of people, rather than scores), we used logistic regression, which is appropriate when the dependent variable is dichotomous but there are continuous control variables. In several instances the frequency of "presence" (e.g., single parenthood) on a dichotomous variable was rare. In those instances (no group percentage was higher than 10%) no planned comparisons were pursued.

In the results discussed below, any references to significant differences or group differences refer exclusively to differences found to be statistically significant ($p \leq .05$ —that is, differences or effects that would have occurred by chance if there really was no difference or effect at or less than 5 percent of the time, which is a generally accepted standard of statistical significance in social science research). Data tables follow the report. Four comparable tables are produced for each set of analyses to allow us to show differences among the groups (i.e., comparing male faculty by race-ethnicity, female faculty by race-ethnicity, white faculty by gender, and faculty of color by gender. Each table reports means or frequencies by group for both times and identifies significant group differences.⁴

⁴ A more complete set of tables, including standard deviations, is available on the ADVANCE Web site: <http://sitemaker.umich.edu/advance/faculty-climate>

Overview of Results

Our approach in this report is to examine qualities and characteristics of faculty work life, beyond the climate (which was addressed in the first two reports), that are thought to be important to faculty members' ability to be productive and have satisfying careers. For example, access to adequate resources to conduct research and opportunities for leadership and influence are considered factors contributing to successful academic careers and conditions that are likely to retain faculty at the university. Similarly, family responsibilities (e.g., the need to care for young children and/or a partner with full-time employment) or demands for university service may, if too time-consuming, divert faculty from their own scholarship and teaching and be obstacles to that success. We consider whether or not these work conditions vary systematically by race-ethnicity and/or gender for science and engineering faculty at Time 1 and at Time 2. We follow with an assessment of how these experiences and conditions may be related to faculty members' job satisfaction.

FINDINGS

Family Demographics

Families: At Time 1, white men more likely to report being partnered with children than white women; that difference did not persist at Time 2 (see Table 1c). There were no other differences in reported family constellation among the faculty groups.

Partner Employment: At both times, white women and women of color were more likely to indicate that they have a partner who was employed full time than their male counterparts (see Tables 1c and d). White women were also more likely to have partners employed as UM faculty than white men at both times. Moreover, the percentage of faculty whose partners were UM faculty increased significantly for both white men and white women Time 1 to Time 2 (see Tables 1a and b).

Family Responsibilities: A **composite family responsibility variable** was created based on a mean of family and partner demographics scores such that a higher score represented more family responsibility (e.g., younger children, single parent, partner employed full-time)⁵. White men and women, as well as men of color, reported significantly more family responsibility at Time 2 than at Time 1. However, white men reported lower levels of family responsibility than white women at both times, and than men of color at Time 2.

Resources

Faculty were queried about their **satisfaction with both office and research space**, as well as satisfaction with **computer equipment, lab equipment, and vendor service** (e.g., repairs, supplies, upgrades). Differences in these individual items were assessed, as well as an overall satisfaction with resources measure⁶, summing the five individual items. At Time 1, white men reported higher satisfaction than men of color on three space resource variables (overall satisfaction, satisfaction with research space, and satisfaction with vendor service); see Table 2a. From Time 1 to Time 2, scores on those variables (plus one other, satisfaction with office space) increased significantly for men of color, and at Time 2 there were no differences on these, or any other space/resource variables, between these two groups of faculty.

⁵ This variable is slightly different from the variable with a similar name reported in the fourth report. The variable in that report also included parent respondents' reports of their level of responsibility for child care in response to a question asked only in 2006.

⁶ This composite variable is slightly different from that used in the fourth report. For that composite variable we were able to incorporate all resource satisfaction variables assessed in 2006 into the composite score. In this report we were limited to those variables that were assessed at both times.

Satisfaction with vendor service scores also increased significantly from Time 1 to Time 2 for white men. There were no racial-ethnic differences on these variables for women scientists and engineers, nor gender differences within race-ethnicity groups.

Service and Leadership

Service: Respondents were asked **how many committees** they typically serve on and/or chaired as well as **how willing they were to take on service tasks**. White women reported serving on more committees than white men at Time 1; there was no difference at Time 2 (see Table 3c). There were no other differences by race-ethnicity or gender on number of committees served on in a typical year, nor in the number of committees chaired in a typical year. White men reported chairing significantly more committees and were more willing to take on time-consuming service tasks at Time 2 than at Time 1.

Leadership: Faculty respondents also reported how **important it was to have a leadership position** and also if they had **ever been asked to serve as department chair** as well as **ever served as chair**. At Time 1, white women rated a leadership position as more important than white men (see Table 3c); there were no other racial-ethnic or gender differences on this variable at either time. There were also no gender or racial-ethnic differences among groups on being asked to serve, or having ever served, as chair.

Influence

Felt Influence: The survey identified nine areas of influence in department activities, and respondents were asked to rate their level of felt influence in each of the areas. Two areas addressed influence in the domain of education (curriculum decisions and selecting new graduate students and residents/fellows); these were combined to create a mean **felt influence over educational matters** scale. Three variables addressed influence in faculty matters (selecting new faculty members, determining who gets tenure, and selecting the next unit head) and were combined to create a mean **felt influence over faculty matters** scale. Three other areas addressed influence concerning departmental resources (size of salary increase, obtaining money for travel, and securing facilities or equipment for research); these items were combined to create a mean **felt influence over resource allocations** scale. The ninth area, influence over the **overall unit's climate/culture**, remained a separate item.

Differences in felt influence focused principally on women of color. Women of color reported less felt influence over faculty and educational matters than white women at Time 1 and Time 2 (see Table 4b). They also reported less felt influence than men of color over educational matters at both times, faculty matters at Time 1 and affecting the department's climate at Time 2 (see Table 4d).

Recognition

To assess experiences of recognition, faculty respondents were asked if their departments had ever nominated them for an **award in research, teaching, and service**. A fourth item asked whether or not their departments had **failed to nominate them for an award** for which they were qualified.

Women of color were less likely to report that they were nominated for a research or teaching award by their departments than either men of color or white women at Time 1 and Time 2, even though they were more likely to report they they were nominated for either type of award at Time 2 than at Time 1 (see Tables 5b and d). White women and men of color were also less likely to indicate that they were nominated for a service award than white men at Time 2; however, at Time 1 men of color were more likely to indicate that they were nominated for a service award than white men (see Tables 5a and c).

Men of color were more likely to indicate that their departments had failed to nominate them for an award for which they were qualified than white men at Time 2. There were no differences between these

two groups of faculty at Time 1; nor were there other race or gender differences at either time among the other groups of faculty.

Summary of Factors that May Support Faculty Work

White men reported less family responsibility than white women (at both times) and men of color (at Time 2). Women were more likely to have a partner employed full-time than men and white women were more likely to have a partner employed at UM as faculty than white men at Time 1 and Time 2.

At Time 1, white men reported higher satisfaction than men of color with resources overall, as well as some individual items. However, satisfaction scores in several areas, including overall satisfaction with resources, were higher at Time 2 than at Time 1 for men of color and there were no differences between their scores and those of white men on these items at Time 2.

At Time 1, white women reported serving on more committees than white men; however, there were no reported gender or racial-ethnic differences in service or leadership activities at Time 2. White men reported chairing more committees, and were more willing to take on service tasks at Time 2 than at Time 1. Women of color reported less felt influence over faculty and educational matters than white women at Time 1 and Time 2. They also reported less felt influence than men of color over educational matters at both times, faculty matters at Time 1 and affecting the department's climate at Time 2.

Women of color were least likely to indicate that they had been nominated by their departments for teaching or research awards at Time 1 and Time 2; and, at Time 2, men of color were more likely than white men to report that their departments had failed to nominate them for award for which they were qualified.

Relationship of these Experiences to Job Satisfaction

We were also interested in examining the relationship of the factors considered here to faculty's job satisfaction (assessed by the item, how satisfied are you with your current position at UM). To assess these relationships, all self-report experience variables (family responsibilities, satisfaction with resources, number of committees served on, felt influence in the four areas, and recognition variables) were correlated with job satisfaction separately by race and gender groups (see Table 6).

White men

At Time 1, felt influence in two areas (educational matters and department's climate), as well as satisfaction with resources, were positively correlated with job satisfaction; reported family responsibility was negatively correlated. At Time 2 all variables except reported family responsibility and reported being nominated for teaching and service awards, were correlated with job satisfaction for white men (and all but the item, failing to be nominated for an award, were positively correlated).

White women

Correlations for white women at both times were similar to results for white men at Time 2. At both times all four influence variables, as well as satisfaction with resources, were positively correlated with job satisfaction; reported failure to be nominated for an award for which they were qualified was negatively correlated with job satisfaction at both times. Differently from white men, reported committee service was unrelated to job satisfaction at either time. In addition, at Time 1 reported family responsibility, and at Time 2 reported being nominated for a research award, were positively associated with job satisfaction.

Men of color

Similar to white men, felt influence over educational matters and the department climate were positively associated with job satisfaction at Time 1; reportedly not being nominated for an award was negatively associated. In contrast, at Time 2 satisfaction with resources, reported committee service, and reported being nominated for a service award produced significant (positive) correlations with job satisfaction.

Women of color

As we found with other faculty groups, satisfaction with resources was positively correlated with job satisfaction at Time 1 and Time 2 for women of color. Like men of color, and unlike white faculty, fewer influence variables were associated with job satisfaction; felt influence over resource allocations was positively correlated at Time 1 and felt influence over the department's climate was positively correlated at Time 2. In addition, reported failure to be nominated for an award was negatively associated with job satisfaction at Time 2.

It is important to note that the sample for faculty of color is smaller than that for white faculty. And, given that in many instances the correlations for white faculty and faculty of color are comparable in magnitude and size it is likely that a larger sample would have produced more significant correlations for faculty of color, as we observed for the white faculty sample.

CONCLUSIONS

For science and engineering faculty, overall satisfaction with resources was positively correlated with job satisfaction at both times; reports of department's failure to nominate faculty for an award for which they were qualified was negatively correlated. In addition, experiences of felt influence were associated with job satisfaction, especially for white faculty, at Time 1 and Time 2. Reported committee service also appeared to matter for male faculty members' job satisfaction at Time 2. In contrast, reported family responsibility did not appear to be an important factor (it only mattered for white faculty at Time 1, and produced opposite associations for men and women).

Both overall satisfaction with resources and felt influence in their departments, then, are key components of science and engineering faculty members' job satisfaction, and therefore, should be considered important aspects of any efforts directed at their retention. We found some improvements in these areas for science and engineering faculty comparing responses at Time 1 to Time 2. Although there were no changes for women faculty, overall satisfaction with resources increased from Time 1 to Time 2 for men of color and at Time 2 there were no differences between white men and men of color on this dimension. There were, however, no improvements in experiences of felt influence for any faculty at Time 2 compared to Time 1 and women of color often reported lower levels of felt influence over educational and faculty matters, as well as affecting the department's climate, than white women and/or men of color.

It is also interesting to note that reported committee service was also a positive factor related to job satisfaction for men, but not women faculty, at Time 2. We found no gender differences on this variable. However, we do not know what those committees were; it is possible that men may have more opportunity to serve on influential committees than women. Regardless, these findings suggest that it is important for all science and engineering faculty, and in particular, women of color, to have sufficient opportunities to participate in, and voice opinions about, key decisions that affect department life: academics, resource allocations, and overall climate and culture.

*Assessing the Academic Work Environment for Science and Engineering Faculty at the University of Michigan in 2001 and 2006:
Gender and Race in Retention-Relevant Career Experiences*

Table 1a: Family Demographics - Male Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	% T1 n=24	% T2 n=28	diff T1-T2	sig	% T1 n=70	% T2 n=107	diff T1-T2	sig		
Single with children	6%	0%	6%		0%	2%	-2%			
Partner, no children	8%	14%	-6%		11%	14%	-3%			
Partner and children	80%	86%	-6%		86%	80%	6%			
Single, no children	6%	0%	6%		3%	4%	-1%			
Partner is employed full-time	32%	58%	-26%		37%	49%	-12%			
Partner employed as faculty versus other employment at UM	13%	45%	-32%		14%	42%	-28%	*		
	mean T1	mean T2	diff T1-T2		mean T1	mean T2	diff T1-T2			
Family responsibility	1.25	1.74	-0.49	*	1.19	1.48	-0.29	*		*

Table 1b: Family Demographics - Female Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	% T1 n=17	% T2 n=26	diff T1-T2	sig	% T1 n=106	% T2 n=91	diff T1-T2	sig		
Single with children	7%	11%	-4%		6%	5%	1%			
Partner, no children	20%	3%	17%		14%	14%	0%			
Partner and children	73%	82%	-9%		66%	72%	-6%			
Single, no children	0%	4%	-4%		14%	10%	4%			
Partner is employed full-time	86%	84%	2%		65%	71%	-6%			
Partner employed as faculty versus other employment at UM	31%	70%	-39%		30%	79%	-49%	*		
	mean T1	mean T2	diff T1-T2		mean T1	mean T2	diff T1-T2			
Family responsibility	1.53	1.83	-0.30		1.38	1.68	-0.30	*		

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table

*Symbol represents significant differences at the $p \leq .05$ level of significance

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Table 1c: Family Demographics - White Faculty										
	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	% T1 n=64	% T2 n=101	diff T1-T2	sig	% T1 n=95	% T2 n=89	diff T1-T2	sig		
Single with children	0%	2%	-2%		6%	5%	1%			
Partner, no children	11%	14%	-3%		14%	14%	0%			
Partner and children	86%	80%	6%		66%	72%	-6%	*		
Single, no children	3%	4%	-1%		14%	10%	4%			
Partner is employed full-time	37%	49%	-12%		65%	71%	-6%		*	
Partner employed as faculty versus other employment at UM	14%	42%	-28%	*	30%	79%	-49%	*	*	
	mean	mean	diff		mean	mean	diff			
	T1	T2	T1-T2		T1	T2	T1-T2			
Family responsibility	1.19	1.48	-0.29	*	1.38	1.68	-0.30	*	*	

Table 1d: Family Demographics - Faculty of Color										
	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	% T1 n=20	% T2 n=27	diff T1-T2	sig	% T1 n=13	% T2 n=23	diff T1-T2	sig		
Single with children	6%	0%	6%		7%	11%	-4%			
Partner, no children	8%	14%	-6%		20%	3%	17%			
Partner and children	80%	86%	-6%		73%	82%	-9%			
Single, no children	6%	0%	6%		0%	4%	-4%			
Partner is employed full-time	32%	58%	-26%		86%	84%	2%		*	
Partner employed as faculty versus other employment at UM	13%	45%	-32%		31%	70%	-39%			
	mean	mean	diff		mean	mean	diff			
	T1	T2	T1-T2		T1	T2	T1-T2			
Family responsibility	1.25	1.74	-0.49	*	1.53	1.83	-0.30			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table

*Symbol represents significant differences at the $p \leq .05$ level of significance

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Table 2a: Satisfaction with Resources - Male Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	T1-T2	sig	mean	mean	T1-T2	sig		
	T1 n=24	T2 n=28			T1 n=68	T2 n=106				
Overall satisfaction with resources	3.08	3.99	-0.91	*	3.72	3.94	-0.22		*	
Individual items:										
Satisfaction with office space	3.50	4.25	-0.75	*	3.87	4.08	-0.21			
Satisfaction with research space	2.35	4.04	-1.69	*	3.44	3.65	-0.21		*	
Satisfaction with computer equipment	3.55	3.83	-0.28		3.81	3.94	-0.13			
Satisfaction with lab equipment	3.64	3.52	0.12		3.82	3.72	0.10			
Satisfaction with vendor service	2.78	3.73	-0.95	*	3.40	3.71	-0.31	*	*	

Table 2b: Satisfaction with Resources - Female Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	T1-T2	sig	mean	mean	T1-T2	sig		
	T1 n=15	T2 n=26			T1 n=103	T2 n=90				
Overall satisfaction with resources	3.20	3.82	-0.62		3.53	3.84	-0.31			
Individual items:										
Satisfaction with office space	3.51	4.26	-0.75		3.79	4.14	-0.35			
Satisfaction with research space	2.95	3.73	-0.78		3.39	3.66	-0.27			
Satisfaction with computer equipment	3.70	3.73	-0.03		3.50	3.77	-0.27			
Satisfaction with lab equipment	3.39	3.72	-0.33		3.52	3.85	-0.33			
Satisfaction with vendor service	3.23	3.34	-0.11		3.36	3.70	-0.34			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table
*Symbol represents significant differences at the $p \leq .05$ level of significance

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Table 2c: Satisfaction with Resources - White Faculty

	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean T1 n=68	mean T2 n=106	T1-T2	sig	mean T1 n=103	mean T2 n=90	T1-T2	sig		
Overall satisfaction with resources	3.72	3.94	-0.22		3.53	3.84	-0.31			
Individual items:										
Satisfaction with office space	3.87	4.08	-0.21		3.79	4.14	-0.35			
Satisfaction with research space	3.44	3.65	-0.21		3.39	3.66	-0.27			
Satisfaction with computer equipment	3.81	3.94	-0.13		3.50	3.77	-0.27			
Satisfaction with lab equipment	3.82	3.72	0.10		3.52	3.85	-0.33			
Satisfaction with vendor service	3.40	3.71	-0.31	*	3.36	3.70	-0.34			

Table 2d: Satisfaction with Resources - Faculty of Color

	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean T1 n=24	mean T2 n=28	T1-T2	sig	mean T1 n=15	mean T2 n=26	T1-T2	sig		
Overall satisfaction with resources	3.08	3.99	-0.91	*	3.20	3.82	-0.62			
Individual items:										
Satisfaction with office space	3.50	4.25	-0.75	*	3.51	4.26	-0.75			
Satisfaction with research space	2.35	4.04	-1.69	*	2.95	3.73	-0.78			
Satisfaction with computer equipment	3.55	3.83	-0.28		3.70	3.73	-0.03			
Satisfaction with lab equipment	3.64	3.52	0.12		3.39	3.72	-0.33			
Satisfaction with vendor service	2.78	3.73	-0.95	*	3.23	3.34	-0.11			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table
*Symbol represents significant differences at the $p \leq .05$ level of significance

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Table 3a: Service - Male Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=24	T2 n=28	T1-T2		T1 n=69	T2 n=107	T1-T2			
Number of committees served on in a typical year	3.20	2.69	0.51		3.13	3.59	-0.46			
Number of committees chaired in a typical year	0.72	0.86	-0.14		0.72	1.39	-0.67	*		
How willing are you to take on time-consuming service tasks?	3.29	3.18	0.11		3.28	3.56	-0.28	*		
How important to you is having a department or college leadership position	2.95	2.76	0.19		2.78	2.86	-0.08			
	%	%	diff		%	%	diff			
	T1	T2	T1-T2	sig	T1	T2	T1-T2	sig		
Have you ever been asked to serve as a department chair	45%	31%	14%		44%	44%	0%			
Have you ever served as a department chair	45%	28%	17%		44%	42%	2%			

Table 3b: Service - Female Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=17	T2 n=26	T1-T2		T1 n=104	T2 n=90	T1-T2			
Number of committees served on in a typical year	2.87	2.22	0.65		4.11	3.51	0.60			
Number of committees chaired in a typical year	0.69	0.34	0.35		0.84	0.89	-0.05			
How willing are you to take on time-consuming service tasks?	3.27	3.34	-0.07		3.45	3.53	-0.08			
How important to you is having a department or college leadership position	2.97	3.17	-0.20		3.30	2.93	0.37			
	%	%	diff		%	%	diff			
	T1	T2	T1-T2	sig	T1	T2	T1-T2	sig		
Have you ever been asked to serve as a department chair	36%	29%	7%		48%	37%	11%			
Have you ever served as a department chair	31%	27%	4%		47%	33%	14%			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table

*Symbol represents significant differences at the $p \leq .05$ level of significance

*Assessing the Academic Work Environment for Science and Engineering Faculty at the University of Michigan in 2001 and 2006:
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Table 3c: Service - White Faculty										
	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=67	T2 n=96	T1-T2		T1 n=102	T2 n=82	T1-T2			
Number of committees served on in a typical year	3.13	3.59	-0.46		4.11	3.51	0.60		*	
Number of committees chaired in a typical year	0.72	1.39	-0.67	*	0.84	0.89	-0.05			
How willing are you to take on time-consuming service tasks?	3.28	3.56	-0.28	*	3.45	3.53	-0.08			
How important to you is having a department or college leadership position	2.78	2.86	-0.08		3.30	2.93	0.37		*	
	%	%	diff		%	%	diff			
	T1	T2	T1-T2	sig	T1	T2	T1-T2	sig		
Have you ever been asked to serve as a department chair	44%	44%	0%		48%	37%	11%			
Have you ever served as a department chair	44%	42%	2%		47%	33%	14%			

Table 3d: Service - Faculty of Color										
	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=24	T2 n=28	T1-T2		T1 n=16	T2 n=25	T1-T2			
Number of committees served on in a typical year	3.20	2.69	0.51		2.87	2.22	0.65			
Number of committees chaired in a typical year	0.72	0.86	-0.14		0.69	0.34	0.35			
How willing are you to take on time-consuming service tasks?	3.29	3.18	0.11		3.27	3.34	-0.07			
How important to you is having a department or college leadership position	2.95	2.76	0.19		2.97	3.17	-0.20			
	%	%	diff		%	%	diff			
	T1	T2	T1-T2	sig	T1	T2	T1-T2	sig		
Have you ever been asked to serve as a department chair	45%	31%	14%		36%	29%	7%			
Have you ever served as a department chair	45%	28%	17%		31%	27%	4%			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table

*Symbol represents significant differences at the $p \leq .05$ level of significance

*Assessing the Academic Work Environment for Science and Engineering Faculty at the University of Michigan in 2001 and 2006:
Gender and Race in Retention-Relevant Career Experiences*

Table 4a: Felt Influence - Male Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=24	T2 n=28	T1-T2		T1	T2	T1-T2			
Felt influence over faculty matters	2.38	2.34	0.14		2.42	2.58	-0.16			
Felt influence over educational matters	3.40	3.26	0.14		3.01	3.17	-0.16			
Felt influence over resource allocations	2.27	2.23	0.04		2.41	2.37	0.04			
Felt influence over unit's climate/culture	2.83	2.69	0.14		2.99	2.95	0.04			

Table 4b: Felt Influence - Female Faculty										
	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=15	T2 n=24	T1-T2		T1	T2	T1-T2			
Felt influence over faculty matters	1.55	1.82	-0.51		2.60	2.56	0.17		*	
Felt influence over educational matters	1.87	2.38	-0.51		3.30	3.13	0.17		*	
Felt influence over resource allocations	2.06	1.65	0.41		2.39	2.26	0.13			
Felt influence over unit's climate/culture	1.92	1.93	-0.01		2.81	2.61	0.20			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table

*Symbol represents significant differences at the $p \leq .05$ level of significance

*Assessing the Academic Work Environment for Science and Engineering Faculty at the University of Michigan in 2001 and 2006:
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Table 4c: Felt Influence - White Faculty

	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=70	T2 n=103	T1-T2		T1 n=106	T2 n=89	T1-T2			
Felt influence over faculty matters	2.42	2.58	-0.16		2.60	2.56	0.17			
Felt influence over educational matters	3.01	3.17	-0.16		3.30	3.13	0.17			
Felt influence over resource allocations	2.41	2.37	0.04		2.39	2.26	0.13			
Felt influence over unit's climate/culture	2.99	2.95	0.04		2.81	2.61	0.20			

Table 4d: Felt Influence - Faculty of Color

	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=24	T2 n=28	T1-T2		T1 n=15	T2 n=24	T1-T2			
Felt influence over faculty matters	2.38	2.34	0.14		1.55	1.82	-0.51		*	
Felt influence over educational matters	3.40	3.26	0.14		1.87	2.38	-0.51		*	
Felt influence over resource allocations	2.27	2.23	0.04		2.06	1.65	0.41			
Felt influence over unit's climate/culture	2.83	2.69	0.14		1.92	1.93	-0.01		*	

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table

*Symbol represents significant differences at the $p \leq .05$ level of significance

*Assessing the Academic Work Environment for Science and Engineering Faculty at the University of Michigan in 2001 and 2006:
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Table 5a: Recognition - Male Faculty

	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=24	T2 n=28	T1-T2		T1 n=69	T2 n=104	T1-T2			
Department failed to nominated for qualified award	1.70	2.12	-0.42		1.91	1.90	0.01			*
	% T1	% T2	diff T1-T2	sig	% T1	% T2	diff T1-T2	sig		
Nominated for research award	35%	32%	3%		31%	38%	-7%			
Nominated for teaching award	40%	28%	12%		40%	37%	3%			
Nominated for service award	23%	12%	11%		9%	15%	-6%		*	*

Table 5b: Recognition - Female Faculty

	faculty of color scientists & engineers				white faculty scientists & engineers				T1 sig race diff	T2 sig race diff
	mean	mean	diff	sig	mean	mean	diff	sig		
	T1 n=16	T2 n=26	T1-T2		T1 n=102	T2 n=87	T1-T2			
Department failed to nominated for qualified award	2.00	2.18	-0.18		1.86	1.80	0.06			
	% T1	% T2	diff T1-T2	sig	% T1	% T2	diff T1-T2	sig		
Nominated for research award	0%	22%	-22%	*	32%	29%	3%		*	*
Nominated for teaching award	0%	10%	-10%	*	31%	25%	6%		*	*
Nominated for service award	10%	9%	1%		14%	13%	1%			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table
*Symbol represents significant differences at the p≤.05 level of significance

*Assessing the Academic Work Environment for Science and Engineering Faculty at the University of Michigan in 2001 and 2006:
Gender and Race in Retention-Relevant Career Experiences*

Table 5c: Recognition - White Faculty										
	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean T1 n=69	mean T2 n=104	diff T1-T2	sig	mean T1 n=102	mean T2 n=87	diff T1-T2	sig		
Department failed to nominated for qualified award	1.91	1.90	0.01		1.86	1.80	0.06			
	% T1	% T2	diff T1-T2	sig	% T1	% T2	diff T1-T2	sig		
Nominated for research award	31%	38%	-7%		32%	27%	5%			
Nominated for teaching award	40%	37%	3%		31%	25%	6%			
Nominated for service award	9%	16%	-7%		14%	13%	1%			*

Table 5d: Recognition - Faculty of Color										
	male scientists & engineers				female scientists & engineers				T1 sig gender diff	T2 sig gender diff
	mean T1 n=24	mean T2 n=28	diff T1-T2	sig	mean T1 n=16	mean T2 n=26	diff T1-T2	sig		
Department failed to nominated for qualified award	1.70	2.12	-0.42		2.00	2.18	-0.18			
	% T1	% T2	diff T1-T2	sig	% T1	% T2	diff T1-T2	sig		
Nominated for research award	35%	32%	3%		0%	22%	-22%	*	*	*
Nominated for teaching award	40%	28%	12%		0%	11%	-11%	*	*	*
Nominated for service award	23%	12%	11%		10%	9%	1%			

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table
*Symbol represents significant differences at the p≤.05 level of significance

Table 6: Correlations with Overall Job Satisfaction

	white male faculty scientists & engineers		white female faculty scientists & engineers		male faculty of color scientists & engineers		female faculty of color scientists & engineers	
	T1 n=68	T2 n=107	T1 n=103	T2 n=91	T1 n=24	T2 n=28	T1 n=17	T2 n=26
Family responsibility	-0.41 ***	0.17	0.25 **	0.14	0.20	0.10	-0.18	0.05
Overall satisfaction with resources	0.24 *	0.39 ***	0.39 ***	0.34 ***	0.31	0.55 **	0.58 *	0.58 **
Number of committees served on in a typical year	0.22	0.27 **	0.00	0.03	-0.02	0.51 **	-0.08	0.14
Felt influence over educational matters	0.27 *	0.51 ***	0.43 ***	0.40 ***	0.43 *	0.18	0.39	0.38
Felt influence over faculty matters	0.23	0.45 ***	0.43 ***	0.34 ***	0.34	0.09	0.26	0.32
Felt influence over resource allocations	0.18	0.43 ***	0.41 ***	0.27 **	0.27	-0.19	0.67 **	0.31
Felt influence over unit's climate/culture	0.39 ***	0.52 ***	0.45 ***	0.48 ***	0.44 *	0.32	0.52	0.53 **
Department failed to nominated for qualified award	-0.20	-0.25 **	-0.29 **	-0.35 ***	-0.65 ***	-0.31	-0.30	-0.41 *
Nominated for teaching award	0.14	-0.02	0.01	-0.01	-0.27	0.16		-0.04
Nominated for research award	-0.01	0.26 **	0.04	0.22 *	-0.19	0.10		-0.07
Nominated for service award	-0.04	0.03	-0.11	-0.05	0.09	0.45 *	-0.02	-0.14

Note: Ns vary slightly by item; Ns reported represent the maximum number of responses by group for the items in the table

*** p-values≤0.001

**0.001<p-values≤0.01

*0.01<p-values≤0.05