

Cornell University

Faculty Work Life Survey

Understanding Faculty Satisfaction

November 2006

*Prepared by Institutional Research and Planning
in consultation with the Provost's Advisory Committee on Faculty Work Life*

In November of 2004, Provost Biddy Martin charged an Advisory Committee on Faculty Work Life “to examine the tenured and tenure-track faculty work life and working climate, with a special emphasis on the experiences of women faculty.” A Faculty Work Life (FWL) Survey grew out of this effort.

The FWL Survey was administered to Cornell faculty in the Fall of 2005. Nine-hundred and sixty-two faculty—or 65% of those invited to participate—responded to the web-based survey. For more information on the response rate, see the companion document “Response Rates and Patterns.”

Several measures on the survey were intended to measure faculty members’ “quality of work life.” Perhaps the most succinct of these is a single indicator of the level of satisfaction with “being a faculty member at Cornell.” The focus of this document is to examine the variation in responses to this single item. To this end, multivariate models which account for various attributes of survey respondents are developed to shed light on why some faculty members are more satisfied than others. In addition, alternative measures of the “quality of work life” are considered. The results of these analyses suggest that perceptions relating to integration or sense of belonging are strongly associated with positive faculty experiences.

Comments and suggestions are welcome and may be shared with a member of the committee (see right); Marin Clarkberg in Institutional Research and Planning, <mec30@cornell.edu>; or Patty Ard in the Office of the Provost, <pma2@cornell.edu>.

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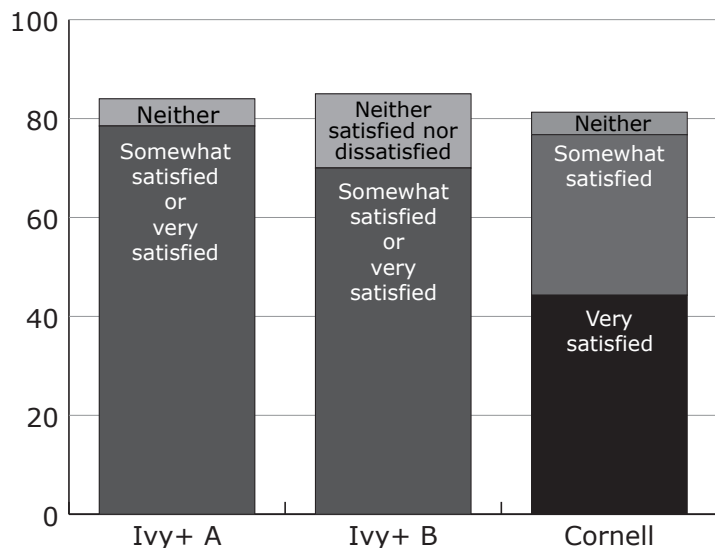
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A. Overall Satisfaction with Being a Faculty Member

The first item on the Faculty Work Life Survey asked, "Overall, how satisfied are you being a faculty member at Cornell?" On a five-point scale where 1 was "very dissatisfied" and 5 was "very satisfied" the overall mean was 3.95. Forty-four percent of faculty responded that they were "very satisfied" and another 32% indicated "somewhat satisfied."

For this item, a limited amount of comparative data is available. Specifically, two institutions in the "Ivy+" consortium shared the data illustrated in Figure 1, which aggregates "somewhat satisfied" with "very satisfied."

Figure 1. Overall Satisfaction with Being a Faculty Member: Cornell and Two Other "Ivy+" Institutions



It appears that the percentage of faculty at Cornell who responded that they were "somewhat" or "very satisfied" is very close to the percentage of faculty doing so at these two other Ivy+ institutions.

Another point of comparison is a survey conducted at Cornell in the spring of 1993 as part of university-wide strategic planning. The survey, titled "Perceptions of Cornell," relied on random samples of the student, staff, and faculty populations. Of the 432 randomly selected faculty, 342 (or 75%) responded to the paper-and-pencil survey.

The 1993 Perceptions of Cornell survey included a global satisfaction item resembling the overall satisfaction measure included in the FWL Survey. Specifically, it asked, "In general, how satisfied are you as a member of Cornell's academic staff?" As in the case with the FWL Survey, respondents were

provided with five response categories, anchored on the ends with "Very dissatisfied" (coded as 1) and "Very satisfied" (coded as 5). In contrast to the FWL Survey, the 1993 Survey did not label the intermediate values of 2, 3, or 4.

Figure 2. Satisfaction as Reported by Faculty in the 1993 "Perceptions of Cornell" Survey and the 2005 "Faculty Work Life Survey"

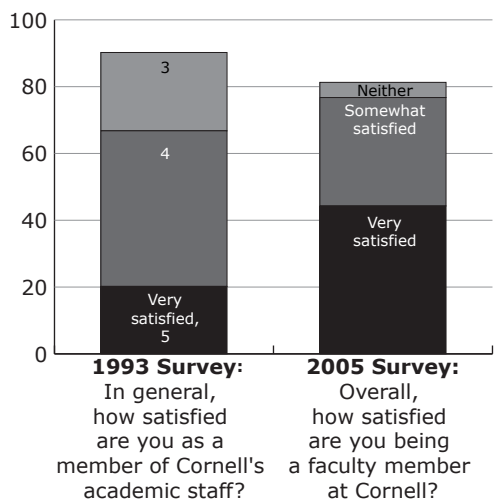
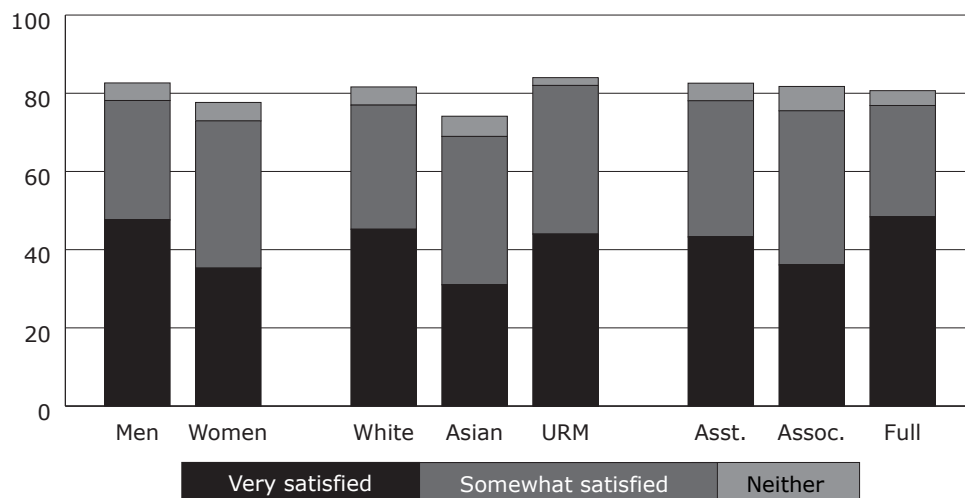


Figure 2 presents side-by-side tenure and tenure-track faculty responses to the 1993 Survey and those from the 2005 FWL Survey. Responses to the 2005 Survey were more likely to correspond to the extreme values of 1 or 5 than those in 1993. For example, more than twice as many faculty in 2005 than in 1993 indicated that they were "very satisfied" (i.e. 44% versus 20%). On the other end of the spectrum (not illustrated here), 7% of faculty in 2005 indicated that they were "very dissatisfied," as compared to only 1% of faculty in 1993. The mean satisfaction level in 2005 is slightly higher—3.95 in 2005 versus 3.71 in 1993—but it is difficult to judge the extent to which differences in wording and in the labeling of response categories may have influenced responses to the two surveys.

Figure 3. Overall Satisfaction with Being a Faculty Member, by Gender, Race/Ethnicity and Rank



In the 2005 FWL Survey, there were significant differences in overall satisfaction by sex and marginally so by rank. Specifically: men were more likely to report being “very satisfied” than women (e.g. 48% versus 35%, see Figure 3); and associate professors were less satisfied than either full or assistant professors (e.g. 36% of associate professors report being “very satisfied” as compared to 43% of assistant professors and 48% of full professors). Under-represented minority (URM) faculty were equally likely as white faculty to report being “very satisfied”; respondents who were Asian were less likely to do so (see Figure 3), but differences by race/ethnicity were not statistically significant.

All but two colleges had an average overall satisfaction level between 3.9 and 4.2 (on a five-point scale): the mean for AAP was below this range, and the mean for the Law School was above this range.

B. Explaining Variation in Satisfaction

There are many possible explanations for why some faculty are very satisfied while others are less so. Accounts for variation may include some of the following considerations:

- **Structural position.** Features of one’s position at the University may shape satisfaction. Measures to consider include: rank, college, discipline, department and salary.
- **Work load.** Intense work loads or tasks of certain types may be associated with higher/lower levels of satisfaction. Measures to consider include: course load, the number of committees served on, the number of publications of various types, and the number of grants.
- **Life outside Cornell.** Personal lives may shape how faculty view their work environments and/or perceive the reasonableness of their responsibilities. Measures to consider include: marital status, presence and ages of children, and satisfaction with life outside of Cornell.
- **Integration.** A sense of connection or belonging to the University community and/or to academia more generally may enhance life as a faculty member. Measures to consider include: the extent of collaboration, and the social aspects of academic and/or departmental life.

This list is undoubtedly not an exhaustive one, but suggests some avenues for exploration.

The analyses which follow address two related questions: First, to what extent do these types of factors explain faculty satisfaction *in general*? And in the next section: given the observation of statistically significant differences by gender as noted above, to what extent does accounting for these factors help us understand why women on the faculty at Cornell are less satisfied than their male counterparts?

The results that follow are based on results from a statistical method called linear regression, a technique that isolates the unique contribution of each of several predictors (such as rank and gender) net of the contribution of the other predictors in the model in explaining the variation of an outcome variable (in this case, overall satisfaction).*

Structural Position

The following variables were considered in a regression model of satisfaction that accounted for features of structural position:

- **Rank:** assistant, associate and full professors were distinguished with indicator variables
- **College:** each of eleven colleges were flagged with indicators
- **Discipline:** eight broad disciplines were differentiated, such that each discipline was represented by at least 100 faculty members. These disciplines included: Professional; Humanities; Psychology & Social Sciences; Math & Physical Sciences; Biology; Applied Biology; Engineering; and Fine & Applied Arts.
- **Salary:** natural log of 9-month salary

Most of these measures are *not* significant predictors of overall satisfaction with being a faculty member. However, the single most important exception to this lack of association is salary; more satisfied faculty are paid more. Further, once salary is controlled for, assistant professors are significantly more satisfied than are full professors.

This multivariate model does not “explain away” the difference noted above concerning the faculty in the college of Art, Architecture and Planning. Disciplinary differences appear fairly minor, though faculty in biology may be somewhat more satisfied with being a faculty member than are faculty in the humanities.

This linear regression model uses nineteen variables and explains only 3.1% of the variance in overall satisfaction.

A model which substitutes some 90 indicators for department (in place of those for college and discipline) does only marginally better, explaining 4.7% of the total variation in satisfaction.

Work Load

The following variables were considered in a model that accounted for work load:

- **Course load:** number of courses taught in 04-05 that were close to research interests, number of courses taught in 04-05 that were *not* close to research interests
- **Committees:** number of administrative committees served on during 04-05
- **Productivity:** numbers of: book manuscripts; articles; and grant proposals submitted in 04-05.

Of these measures, only course load is associated with satisfaction: faculty who teach more classes and especially those who teach more classes *not* close to their own research interests are slightly less satisfied than faculty who teach less.

However, this regression model is not particularly powerful; with six predictors of work load it accounts for only 0.9% of the variation in overall satisfaction.

* The analyses below were also essentially repeated with a few alternate methods, including logistic regression (to predict the odds of being “very satisfied” versus not) and ordered logistic regression (using the five categories in the original coding of overall satisfaction). The results from those more complex models do not differ in substance from those presented here. Because results from generalized linear models are somewhat more cumbersome to discuss, we present the linear regression results here. In addition to exploring alternative methodologies, we also explored other possible measures of work life quality as outcome measures. These measures include a factor score of several satisfaction measures, and a factor of perceived departmental climate (see page 8 of this document). Again, the results were similar in flavor to the findings reported here. For more details on those analyses, please contact Marin Clarkberg at mec30@cornell.edu or 255-9101.

Life Outside Cornell

The following variables were considered in a model of satisfaction that accounted for some aspects of respondents' personal and/or family lives:

- **Marital status:** indicators for married and partnered
- **Parenthood:** parent of child[ren] aged 5 or younger; parent of child[ren] aged 6 through 17, and parent of children 18 or older.
- **Satisfaction with life outside Cornell:** responses, coded 1 through 5, to the question, "Overall, how satisfied are you with your life outside of Cornell?"

In general, married faculty are significantly more satisfied with being a faculty member than are unmarried faculty. (The evidence further suggests that unmarried faculty with same sex partners are about as satisfied as married faculty, but unmarried faculty with opposite sex partners have satisfaction levels closer to those of single faculty.)

Parents of grown children are somewhat less satisfied than faculty with no children, but there were no other significant difference between parents and nonparents.

Faculty who are more satisfied with life outside Cornell also tend to be more satisfied with being a faculty member.

This regression model with eight predictors accounts for 3.2% of the variance in overall satisfaction with being a faculty member.

Integration

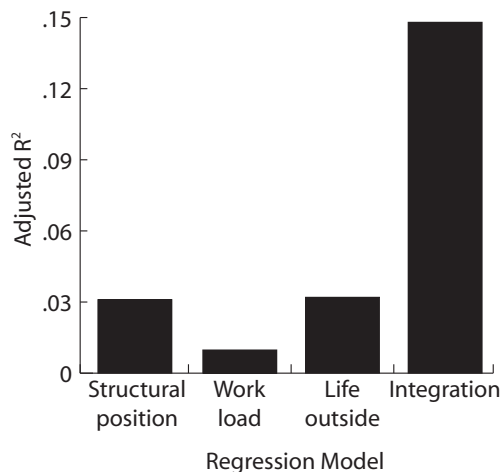
The following variables were considered in a model of satisfaction that accounted for the degree of integration or sense of belonging:

- Agreement with, "I feel I am ignored in my department/unit"
- Agreement with, "I can navigate the unwritten rules concerning how one is to conduct oneself as a faculty member"
- Extent of stress caused by "Departmental or campus politics"
- Satisfaction with "Opportunities to collaborate with faculty in other units at Cornell"
- Extent considered "To find a more supportive work environment" as a reason to leave Cornell

All five indicators are statistically significantly associated with overall satisfaction with being a faculty member at Cornell. Faculty who feel ignored, cannot navigate the unwritten rules of faculty life, are stressed by politics, are unsatisfied with opportunities to collaborate, and are considering leaving Cornell to find a more supportive work environment are significantly less satisfied with being a faculty member at Cornell.

This model with five indicators of faculty integration explains 14.8% of the variation in overall satisfaction: three to more than ten times the variation explained by the other models discussed above (see Figure 4).

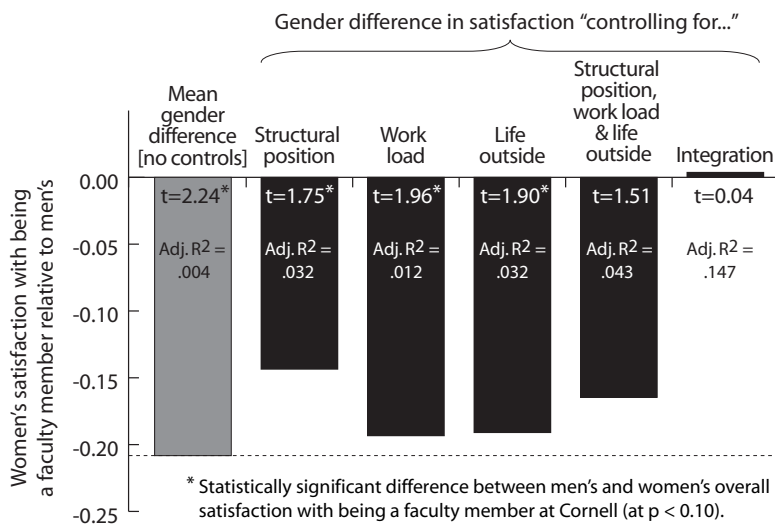
Figure 4. Adjusted R²'s for Various Regression Models Predicting Overall Satisfaction Being a Faculty Member



Note: The R² statistic is generally interpreted as the percent of variation in the outcome variable that is explained by the explanatory variables.

C. Understanding the Gender Gap in Overall Satisfaction

Figure 5. The Mean Gender Difference in Overall Satisfaction Being a Faculty Member with Various Other Controls



In response to the overall satisfaction item, faculty could respond on a scale coded from 1 (“very unsatisfied”) to 5 (“very satisfied”). The average response was 4.004 from men, and 3.796 from women. The mean gender difference of -0.208 is illustrated with the left-most bar depicted in Figure 5. The bars to the right, in turn, portray the remaining gender difference once other factors are accounted for with linear regression models.

For the most part, the gender difference in satisfaction remains with controls for structural position, work load, and life outside of Cornell. (In a model with indicators from all three of those rubrics, the gender difference passes to statistical insignificance, but at -0.165, the magnitude of the difference remains at about 80% of the size of the original difference. See Table 3 on page 8 of this document for details.)

The model including several indicators for “integration,” however, *fully explains* the gender difference in overall satisfaction. That is, if men and women felt the same about the five indicators of integration listed above, these results suggest that they would be equally satisfied being faculty members at Cornell.

Regression models run separately for the group of men who answered these items (n = 573) and for the group of women (n = 219) suggest that these five indicators play a role in both men’s and women’s overall satisfaction, though two coefficients are not significant in the women’s-only model (see Table 1), perhaps because statistical significance is partly a function of sample size and there are fewer women than men.

The results regarding overall satisfaction in Table 1 further indicate that the five measures explain a larger proportion of the variance among women (R² = 0.251) than they do among men (R² = 0.106). Alternative models including a wide variety of different measures from the survey instrument did not close this disparity in explanatory power.

Table 1. Regression Results Predicting Overall Satisfaction, for Total Sample and by Gender

Predictor	Total		Men		Women	
	Coef.	β	Coef.	β	Coef.	β
Satisfied with collaboration opportunities at Cornell	0.163*	0.149	0.120*	0.106	0.257*	0.254
Stressed by departmental or campus politics	-0.181*	-0.109	-0.156*	-0.094	-0.247*	-0.147
Feel ignored in department	-0.070*	-0.071	-0.077*	-0.078	-0.074	-0.078
Can navigate the faculty role	0.152*	0.124	0.165*	0.130	0.100	0.088
Considering seeking a more supportive work environment	-0.236*	-0.151	-0.202*	-0.124	-0.296*	-0.207
Female	0.004	0.001	—	—	—	—
Adjusted R ²	0.148		0.106		0.251	
n	792		573		219	
Constant	3.664		3.680		3.804	

* p < 0.10

D. Integration or Sense of Belonging

Table 2 provides the means and standard deviations for the five measures of integration used in the regression analysis described above. On each measure, women are less “integrated” on average, than are men (with all t-statistics greater than 2 in magnitude).

If women responded the way men did to these five measure of integration (that is, if women had the same means as men), the results in section C indicate that women would be at least as satisfied as men.

Table 2. Descriptive Statistics for Five Measures of Integration, by Gender

Indicator	Resp. Range	Men		Women	
		Mean	sd	Mean	sd
[Satisfaction with] Opportunities to collaborate with faculty in other units at Cornell	1-5	3.74	1.12	3.46	1.23
[Extent of stress caused by] Departmental or campus politics	1-3	1.93	0.77	2.13	0.74
[Agreement with:] I feel I am ignored in my department/unit	1-5	2.07	1.29	2.31	1.30
[Agreement with:] I can navigate the unwritten rules concerning how one is expected to conduct oneself as a faculty member	1-5	4.01	0.99	3.76	1.12
[Extent considering leaving Cornell] To find a more supportive work environment	1-3	1.64	0.78	1.92	0.87

All the results heretofore have treated the five measures of integration as distinct and independent contributors to the outcome of overall faculty satisfaction. It is also possible to conceptualize the five measures as related indices of a single phenomenon. A statistical technique called “factor analysis” provides a method for constructing a single weighted factor (or index) constructed as a weighted mean of the five indicators. (The five items have an alpha reliability coefficient of 0.64.)

Figure 6. The Distribution of an “Integration” Index, by Gender

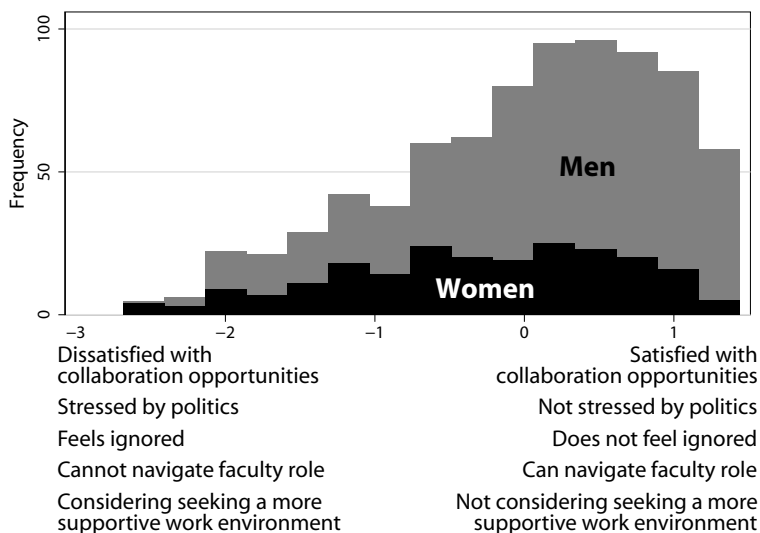


Figure 6 presents the distribution of this single “integration” scale. (The bars differentiating men and women are stacked such that the entire silhouette describes the distribution of the measure.) Both men and women fall along the entire spectrum of this scale. However, the distributions vary by gender, such that a larger proportion of men than women consider themselves satisfied with collaboration opportunities and comfortable navigating the unwritten rules of conducting themselves as faculty members.

More specifically, 57% percent of responding women have negative values on the “integration” scale, as compared to 37% percent of responding men.

Figure 7. The Distribution of an "Integration" Index, by Level of Overall Satisfaction with Being a Faculty Member

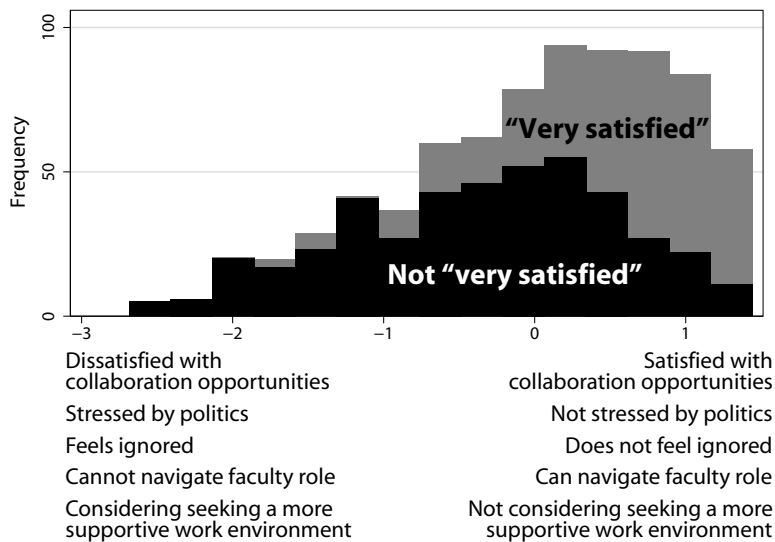


Figure 7 shows the same silhouette (the distribution of the created index tapping integration), but this time by whether or not the survey respondent indicated they were overall "very satisfied" with being a faculty member at Cornell. This graph illustrates the strength of association between satisfaction and integration.

Specifically, among the 121 faculty with values of less than negative one on the integration index, a total of 11 respondents indicated that they were "very satisfied" being a faculty member.

Conversely, among the 118 faculty with scores above positive one (signifying a high level of integration, appearing on the right side of the graph), 95 indicated that they were "very satisfied" with being a faculty member.

While we may not completely understand either the source of the gender difference in integration or the nature of the relationship between integration and satisfaction, it is apparent that:

- Women are less integrated than men, and
- Less integrated faculty tend to be less satisfied than are those who feel more integrated with being a faculty member.

E. Other Measures of Quality of Work Life

Overall satisfaction with being a faculty member is a succinct and compelling measure of the "quality of work life" among faculty. However, other variables may also tap aspects of the quality of work lives and offer different advantages. For example, we might consider some or all of the following:

- The single item: "All things considered, if you had to do it all over again, would you accept a position at Cornell?" On a five-point scale, responses ranged from "Definitely not" to "Definitely would." This measure correlates with overall satisfaction at 0.34.
- A satisfaction *scale*. For example, a series of ten items were asked of all faculty, and included satisfaction with rank, salary, benefits, office space, staff, library resources, computing, graduate students, advising responsibilities and committee responsibilities. While these measures tap distinct areas, in fact they are correlated (respondents satisfied in one area tend to be satisfied in other areas) such that as a scale they have an alpha reliability coefficient of 0.85. A single factor extracted from these measures correlates with overall satisfaction at 0.27.
- Departmental climate. The survey asked faculty to "rate the climate" of their units on five continua (collegial-contentious; cooperative-competitive; conciliatory-aggressive; seeks the collective good-seeks individual advantage; cohesive-fragmented). Responses to these five items were strongly correlated (e.g. $\alpha = 0.92$). This index correlates with overall satisfaction at 0.20.

Table 3. Summary of Regression Results for Four Different Outcome Measures Relating to Faculty Work Life

Outcome in Regression Model	R ² from a regression model including:		Overall difference between the mean outcomes for men and women "controlling for"...		
	Measures of structural position, work load and life outside	Measures of integration	Nothing [no controls]	Measures of structural position, work load and life outside	Measures of integration
Overall satisfaction being a faculty member	0.043	0.147	-0.208*	-0.165	0.004
Likelihood one would "do it all over again"	0.057	0.341	-0.229*	-0.142	0.037
Satisfaction scale	0.127	0.207	-0.149*	-0.045	-0.007
Perception of departmental climate	0.114	0.399	-0.299*	-0.254*	-0.105*

Table 3 summarizes the results of using these alternative measures of quality of faculty work life as outcomes in regression analyses. In each case, the indicators of integration described above were powerful explanatory factors in the outcome and explained considerably more variation than did the measures of structural position, work load or life outside of Cornell (see, for example, the left panel of Table 3).

Further, controlling for the measures of integration essentially eliminated initial gender disparities in responses to the "do it all over again" and in the satisfaction scale, and explained the majority of the gender gap in responses to the departmental climate scale (see the right panel of Table 3).

Thus while each of these measures of faculty work life quality are somewhat different from one another, the conclusions suggested by the preceding analyses remain essentially unchanged: integrated faculty have higher quality work lives; and sense of integration explains much of the gender disparity in these work life outcomes.