

The Effects of Faculty Demographic Characteristics and Disciplinary Context on Dimensions of Job Satisfaction

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Abstract This study applies Kalleberg’s framework to better understand the effects of diverse demographic faculty characteristics on dimensions of job satisfaction. We also extend his work and the work of others to explore the contextual effects of academic disciplines on faculty job satisfaction. We find that women are consistently less satisfied than their male colleagues and that the effect of being female varies by discipline on levels of job satisfaction. We also find race/ethnicity has mixed effects on dimensions of job satisfaction but the effects of race/ethnicity tend to be constant across discipline. Our findings hold important implications for those seeking to understand the experiences of college faculty from diverse demographic backgrounds.

Keywords Diversity · Faculty · Job satisfaction · Discipline

Warrant for the Study

As the college student population has become increasingly more diverse, colleges and universities have—though at varying paces and at varying levels of institutional commitment—sought to diversify their faculty. Because retention of a diverse professoriate plays a critical role in fostering an intellectual environment reflective of the diversity of students and the broader society, it is imperative to understand the factors, which contribute to faculty retention. Job satisfaction is a key predictor of intention to remain in or leave an academic position (Hagedorn 1996; Rosser 2004; Smart 1990). A host of studies (Aguirre 2000; Astin et al. 1997; Bellas 1997; California News Reel 1996; Hagedorn 2000; Johnsrud and Sadao 1998; Olsen et al. 1995; Perna 2001; Ponjuan 2005; Rosser 2005; Smart 1990; Tack and Patitu 1992; Trower and Chait 2002; Turner 2002; Turner and Myers 2000; Witt and Lovrich 1988) have examined college faculty job satisfaction, particularly as it relates to gender and race/ethnicity. The weight of the evidence suggests

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that women faculty and faculty of color are less satisfied with their jobs than their male and White colleagues.

Although past research has been instrumental in shedding light on the degree to which job satisfaction differs by race/ethnicity and gender, few of these studies have simultaneously taken into account the contextual role that discipline plays in job satisfaction. This is not an inconsequential omission in that the literature suggests faculty members in an academic field tend to resemble one another more closely than faculty in other fields (Austin 1996; Becher 1987; Biglan 1973; Smart et al. 2000) and are often more committed to their disciplinary department than the institution as a whole (Clark 1987; Fjortoft 1993; Gouldner 1957). Moreover, studies have found perceptions of the faculty role and job satisfaction to be significantly related to academic discipline (Hemmasi 1992; Neal 1990; Neumann and Finaly 1991; Opp 1992; Terpstra and Honoree 2004). In light of these findings, it seems plausible that diverse demographic characteristics may increase in their salience depending on the disciplinary context of the individual faculty member. For example, a woman in chemical engineering, a field in which women are underrepresented, may differ in job satisfaction than her female peer in English, a more gender-balanced discipline. By ignoring the disciplinary context, readers may assume any effect found for gender applies equally to all disciplines, erroneously furthering the notion that processes work in the same way despite differing contexts (Duncan et al. 1998).

Researchers have attempted to model this “nesting” effect (i.e., faculty members nested within disciplines) in two ways. Many have built statistical models attaching group-level variables to individuals. This practice accounts for disciplines as “control” variables. By including discipline as a host of dummy variables, the contextual effects are presumed to be held constant. This presents a statistical problem. Given the similarity of faculty members in an academic discipline, disaggregating the group-level information to focus solely on the individual unit of analysis pools all of the unmodeled contextual information into a single error term, violating the Ordinary Least Squares assumption of uncorrelated errors (Raudenbush and Bryk 2001; Duncan et al. 1998; Luke 2004). Moreover, Hox (2002) warns against this method in that it artificially inflates the sample size due to disaggregation, leading to spurious findings and Type I error. Others (Fairweather 1996; Toutkousian 1998) have built separate regression models for every discipline. While such an approach avoids the problem of correlated errors, the resulting models can be difficult to interpret.

Purpose and Research Questions

The present study extends the inquiry of the effects of diverse demographic characteristics on faculty job satisfaction and addresses the methodological challenges existing in past research. First, in addition to exploring racial and ethnic differences, we include disability and first-generation college student status (i.e., a proxy for social class) as statistical controls in an effort to further isolate the unique effects that diverse demographic characteristics may have on faculty job satisfaction. We believe this is important in that any deviation from the historical faculty norm (male, White, able-bodied, and from a higher social class) may affect faculty job satisfaction. Second, we employ hierarchical linear modeling (HLM) to examine the contextual effects of academic discipline on faculty job satisfaction. This seems appropriate given that the primary affiliation faculty members have is with their discipline (Austin 1996; Clark 1987; Smart et al. 2000). Past studies, which have predicted domains of job satisfaction solely on an aggregation of demographic

characteristics, appear to have denied the effect that disciplinary contexts may have on faculty satisfaction. The present study recognizes the potential influence of disciplinary context on faculty job satisfaction and includes this influence in our models. Thus, the following research questions guide our study:

1. To what extent does faculty job satisfaction vary between disciplines?
2. Net of rank, tenure status, measures of productivity, and percent time spent in typical faculty activities, what effects do diverse demographic characteristics have on faculty job satisfaction?
3. Can we explain the disciplinary differences in job satisfaction using characteristics of the academic discipline (e.g., proportion of women in the discipline, work emphases, levels of research productivity)?
4. To what extent do the effects of diverse demographic characteristics on faculty job satisfaction vary between disciplines?

This paper first defines job satisfaction and the theoretical framework that guides the research. Because the majority of research has been conducted on the job satisfaction of women and faculty of color, we use the theoretical framework to guide our review of this literature. The method and analyses employed for the present study follow. We conclude with the results and a discussion of these findings in terms of implications for university policy.

Theoretical Framework

Job satisfaction refers “to an overall affective orientation on the part of individuals toward work roles which they are presently occupying” (Kalleberg 1977, p. 126). In a ground breaking theory of job satisfaction, Kalleberg (1977) took into account individual worker differences by incorporating work values and perceived job rewards as key explanatory variables of job satisfaction in addition to the actual characteristics of the job. Using factor analysis, his research detailed six dimensions of job satisfaction. He found dimensions of job satisfaction could be considered as either intrinsic (referring to the work itself) or extrinsic (representing facets of the job external to the task itself).

Kalleberg (1977) defined the intrinsic dimension as the degree to which the work itself is interesting, self-directed, and where the results are evident. Regarding the extrinsic dimensions, he constructed the following: financial, career, convenience, relationships with co-workers, and adequacy of resources. The financial dimension refers to items such as salary, benefits, and job security. The career dimension considers opportunities that the job provides for career advancement. In the case of faculty, this can be considered in terms of advancement in rank and tenure. A third extrinsic dimension, the convenience dimension, focuses on the creature comforts of the job (i.e., convenience of travel to and from work, freedom from conflicting demands, no excessive amounts of work, and time to do work). Another extrinsic dimension deals with relationships with co-workers and includes the chance to make friends with people on the job as well as co-workers’ friendliness, helpfulness, and personal interest in the worker. Finally, the resource adequacy dimension includes the degree to which resources to do the job well are available to the worker. Kalleberg found the extent to which workers were able to obtain perceived job rewards along these dimensions influenced overall job satisfaction positively.

Because we are interested in gaining a more complete and complex understanding of job satisfaction, we have chosen to use Kalleberg's (1977) theoretical framework of job satisfaction. This framework deconstructs job satisfaction into a number of theoretically derived and empirically validated factors, which can aid in faculty retention efforts. For example, although a university may be limited in its ability to modify salary structure, if the administration knows that job satisfaction lags in the area of "relationships with co-workers", the administration can engage in efforts to improve the campus' collegial climate. We find the decomposition of job satisfaction proposed by Kalleberg provides more useful and finer-grained job satisfaction data, which universities can use to inform their policies and campus climate improvements.

Extension of Kalleberg's Theory to Women Faculty and Faculty of Color

A number of studies (Astin et al. 1997; Bellas 1997; Bower 2002; Bronstein 1993; Dey 1994; Hagedorn 1996; Johnsrud 1993, 2002; Laden and Hagedorn 2000; McElrath 1992; Olsen et al. 1995; Peluchette 1993; Perna 2001; Thompson and Dey 1998; Turner 2002; Witt and Lovrich 1988), books (Moody 2004; Turner and Myers 2000), monographs (Gainen and Boice 1993; Hagedorn 2000), and two ASHE-ERIC reports (Aguirre 2000; Tack and Patitu 1992) have looked at the experiences, level of job satisfaction, and issues that women and faculty of color face in the academy. Drawing from Kalleberg's theoretical framework of job satisfaction, we discuss the findings from this literature in terms of the six dimensions of job satisfaction.

With regard to the intrinsic satisfaction or the satisfaction one gets from the actual work, Diener (1985) suggested faculty, in general, are likely satisfied with "the work itself," in that it provides realization of personal satisfaction and growth as well as intellectual stimulation. As such, faculty work consists of three components: teaching, research, and service.

Ponjuan (2005) found Latino faculty were less satisfied than White faculty with their overall job duties but that African American faculty did not statistically differ in their job satisfaction than their White colleagues. Looking specifically at the teaching component of the job, however, research has found women and faculty of color perceive themselves as relegated to teaching the courses that are a service component of the department as opposed to teaching courses that satisfy major requirements (Aguirre 2000). Faculty of color also frequently hold dual appointments (i.e., in area studies and a traditional discipline) (Aguirre; Johnsrud 1993; Smith et al. 1996) and thus, spend a considerable amount of time developing curriculum for two departments in addition to teaching courses. This lack of authority in such a key aspect of the "work" can seriously mitigate job satisfaction in this dimension (Eimers 1997; Plascak-Craig and Bean 1989). Astin et al. (1997) found faculty of color to be less satisfied in terms of their autonomy, independence, and opportunity to develop new ideas (critical aspects of the intrinsic work dimension) than their White colleagues. More recently, Rosser (2005) found intrinsic job satisfaction for faculty of color to have diminished from 1993 to 1999. Despite reports of decreased satisfaction with authority over their work, women and faculty of color often find great satisfaction in the research they conduct (Ropers-Huilman 2000; Ladson-Billings 1997). Ropers-Huilman asserted that women and women faculty of color, who often engage in action-oriented research, view their research as providing a sense of coherence between one's work and community.

Turning to the extrinsic dimensions of financial and career satisfaction, research has repeatedly found that women earn less than men, net of a battery of human capital measures (Bellas 1997; Hearn 1999; Perna 2001; Toutkousian 1999; Umbach 2006). Moreover, the percentage of women in a discipline has a negative effect on faculty salaries (Bellas 1997). Research on the existence of salary differentials among faculty of color has been largely inconclusive (Aguirre 2000; Hearn et al. 1996). Wage differentials aside, compared to White, male colleagues, faculty of color and women appear to be more stressed and less satisfied with the promotion and tenure process (Thompson and Dey 1998; Trower and Chait 2002), reporting “somewhat extensive” to “extensive” stress during the process and less satisfaction with job security (Astin et al. 1997).

One of the key aspects of the convenience dimension of job satisfaction as it pertains to faculty work is freedom from conflicting demands, no excessive amounts of work, and time to do work. Barnes et al. (1998) investigated the relationship between job-related stress and intent to leave academia, a behavior consistent with low job satisfaction. After adding job stressors into the regression model, Barnes et al. found time commitment of the work was one of the two significant predictors of intent to leave academia. Women and faculty of color experience conflicting demands on their time at greater levels than their male and White colleagues (Aguirre 2000; Dey 1994; Gormley 2003; Hagedorn and Sax 2004; Turner 2002; Witt and Lovrich 1988). For female faculty, who are often juggling multiple roles of partner, parent, and scholar, the conflicting demands on time can significantly affect job satisfaction within this dimension (Hagedorn & Sax; Peluchette 1993). These demands are particularly acute for women faculty of color who are often expected to be both scholar and teacher as well as the big sister or mother for minority students (Aguirre; Turner 2002).

Although some research has suggested that faculty of color and women do not sit on more committees (Allen et al. 2002), they do tend to sit disproportionately on committees that deal with diversity issues (Trower and Chait 2002). Researchers have commented that diversity-related committees require a significant time commitment due to the “invisible work” that these types of committees require. According to Gloria Cuádras, associate professor of sociology at Arizona State University West, “invisible work” includes time to “work the pipeline”—encouraging students of color to consider education at all levels. It can include bringing high school students to campus after-hours for tours and to meet with other students; writing letters of recommendation for promising students of color to graduate programs; mentoring graduate students of color through the process; and nominating and making calls on behalf of graduating students for positions in the academy (California News Reel 1996; Cuádras 1998). It’s the invisible work in addition to the other work expectations held of all faculty members that contribute to the exhausting service done by faculty of color and women. According to a female faculty of color, “it was frustrating too, because anything that had to do with diversity, people dumped it on my lap ... Diversity should be everybody’s job” (Turner and Myers 2000, p. 95).

Building relationships with co-workers can be a challenge since faculty of color and women often feel a sense of isolation as they are frequently the “only one” in their department (Aguirre 2000, Tack and Patitu 1992). This isolation and lack of collegiality may be stem from the perception that the woman or faculty of color was hired as an “affirmative action hire” (Turner and Myers 2000). “Rightly or wrongly, many of my non-minority colleagues ... are never 100 percent sure that a minority person is here because they are good at what they do or because of affirmative action,” shared a male American Indian tenured in the social sciences (Turner and Myers, p. 90). Fontaine and Greenlee

(1993) found faculty who were “double solos” (i.e., the only female faculty of color in a department) felt inordinate pressure to outperform their colleagues.

Numerous researchers address the misconception of the “token hire” (Aguirre 2000; Smith et al. 1996; Tierney and Bensimon 1996; Trower and Chait 2002; Turner and Myers 2000), concluding it creates an unwelcoming or “chilly” climate. In a study of research university faculty, Bronstein and Farnsworth (1998) found women more often than men reported experiences of gender discrimination characterized by exclusion by colleagues, inappropriate sexual attention, demeaning or intimidating behaviors, and unfair treatment in personnel matters. Similarly, Ponjuan (2005) found women, Latino, and African American faculty less likely to agree that institutional climate was fair to faculty of color than their male, White colleagues.

Women faculty and faculty of color also reported feeling that their colleagues view their research as tangential, self-serving, and that it was not “pure” science (Aguirre, 2000; Bronstein, 1993; California News Reel, 1996; Garza, 1993; Ladson-Billings, 1997). Dr. William T. Trent, a professor of educational policy at the University of Illinois at Urbana-Champaign noted, “You have to work to make your colleagues see how [scholarship on Blacks] is not folly or trivial, but a necessary aspect of mainstream work” (Collison, 1999, p. 26).

The literature review has described past research that has focused on the job satisfaction of women and faculty of color relative to the dimensions outlined by Kalleberg (1977) and addressed in the present study. In discussing the intrinsic, financial and career, convenience, and relational dimensions of job satisfaction, some of the challenges faced by women and faculty of color have been identified. In sum, the literature strongly suggests that dimensions of job satisfaction, both intrinsic and extrinsic (financial and career, convenience, and relationships with co-workers), appear to be lower for women and faculty of color than for their male and White colleagues. Based on previous research, we hypothesize that women faculty and faculty of color will report lower levels of job satisfaction on these dimensions than their male and White colleagues.

Method

Sample

We used the 1999 National Study of Postsecondary Faculty data [NSOPF:99] collected by the National Center for Education Statistics (National Center for Education Statistics [NCES] 1999). NSOPF was designed for three purposes: (1) to provide national profiles of faculty and instructional staff in postsecondary institutions; (2) provide national benchmarks for faculty productivity and workload; and (3) provide information on institutional policies and practices affecting faculty. In 1998, NSOPF was sent to a nationally representative sample of faculty and instructional staff at 2- and 4-year public and private not-for-profit degree granting postsecondary institutions. Approximately 18,043 faculty members completed the questionnaire (NCES 2002). In an effort to minimize the impact of confounding influences, our analytical sample included full-time, instructional teaching faculty who held the rank of assistant, associate, or professor at Doctoral Research-Intensive and Doctoral Research-Extensive institutions in which a tenure process existed. We limited our sample to these institutions given that disciplinary affiliation is particularly salient for research university faculty. After eliminating cases with missing data, the unweighted sample was 4,231. The data were weighted to reflect the complex sampling

design used by NCES. All analyses were completed using the individual sample weight to take into account the complex sample design employed in the data collection. The application of this weight corrects for the unequal non-zero probability of selecting frame units into the sample (Groves et al. 2004).

Females comprised 26% of our sample and Whites made up 85% of our sample. We found that in the total sample of faculty who participated in NSOPF:99, 44% were women and 85% were White. The differences in the distribution by gender may be due to the fact that women are disproportionately represented at community colleges and at institutions without tenure (Chronister et al. 1997; Finkelstein et al. 1998; Tack and Patitu 1992). We recognize that the analytical sample of interest for the present study truncates the gender diversity in the professoriate. We believe, however, focusing on 4-year research institutions allows for a more refined inquiry into the effects diverse demographic characteristics have on job satisfaction at the classification of institutions of higher education where structural diversity of the professoriate is the smallest (i.e. Doctoral-Extensive and Doctoral-Intensive institutions).

We also included disability and social class as additional demographic characteristics. We believe that including these variables allowed us to statistically control for any effects that these demographic characteristics may have on the dependent variables. Our sample included 3% faculty who identified as having a disability and 33% who identified as first-generation college students. The latter was defined as faculty for whom neither of their parents attended college. We present the descriptive characteristics for all of the variables in the models in Table 1.

Variables

Dependent Variables

In using national datasets, researchers have acknowledged the inherent measurement limitations (e.g., Rosser 2004). Specifically, the questions posed may not measure the construct of interest to the depth desired. Acknowledging this limitation of the data, we factor analyzed the survey items from NSOPF:99 which dealt with job satisfaction. Guided by the job satisfaction dimensions proposed by Kalleberg (1977), we found four underlying factors, which approximated five of the six dimensions. Our four dependent variables approximated the following Kalleberg job satisfaction dimensions: autonomy, financial and career, convenience, and relationships with co-workers.

Although the NSOPF:99 questions failed to probe the level of satisfaction faculty derived from teaching and conducting research, the first factor aligned closely with the autonomy or authority over the work itself facet of the intrinsic dimension described by Kalleberg (1977). Authority over the work itself ($\alpha = 0.717$) measured faculty satisfaction with authority to decide course content, courses taught, and make other job-related decisions. The final three constructs approximated several of the extrinsic dimensions advanced by Kalleberg. Satisfaction with financial compensation and career advancement ($\alpha = 0.754$), was comprised of items such as satisfaction with salary, benefits, job security, and advancement opportunities. This dependent measure combined the financial and career dimensions proposed by Kalleberg. Satisfaction with the convenience aspects of the job ($\alpha = 0.804$) focused less on the creature comforts of the job such as commuting and parking and more on the workload and conflicting demands on faculty members' time. Constituent items for this factor included: satisfaction with time to advise students, prep for class, and keep current in

Table 1 Descriptive statistics for variables in model

	Mean	SD	Minimum	Maximum
<i>Level 1 variables: individual level</i>				
Female	0.264	0.441	0	1
Asian Pacific Islander	0.078	0.269	0	1
African American	0.037	0.189	0	1
Latino/a	0.029	0.169	0	1
Native American	0.005	0.068	0	1
White	0.850	0.357	0	1
Disability	0.032	0.176	0	1
First-generation	0.330	0.470	0	1
Age	49.597	9.820	25	80
Experience: years in higher education	17.190	10.844	0	45
Career articles	31.338	40.886	0	200
Career books	3.998	9.454	0	64
Career presentations	63.568	110.181	0	750
PI/Co-PI	0.442	0.497	0	1
Salary	71,753.25	34,636.04	0.00	250,000.00
Full professor	0.391	0.488	0	1
Associate professor	0.318	0.466	0	1
Assistant professor	0.290	0.454	0	1
Tenured	0.643	0.479	0	1
On-tenure-track	0.235	0.424	0	1
Non-tenure-track	0.122	0.328	0	1
Years in rank	7.243	7.472	0	38
Percentage time teaching	44.767	25.044	0	100
<i>Level 2 variables: disciplinary level</i>				
Avg. proportion female in discipline	0.366	0.212	0.000	0.960
Avg. proportion White in discipline	0.788	0.159	0	1
Avg. number of career articles	24.794	17.159	0	85
Avg. number of career books	4.523	4.400	0	32
Avg. number of career presentations	58.647	38.785	2	210
Avg. % time actually teaching	48.315	9.669	24.836	75.500
Proportion of faculty who are PI or CoPI	0.388	0.255	0.000	0.960
Avg. salary	62,534.17	12,590.51	35,571.25	109,221.72

the field. The response categories for all items that comprised these factors were: very satisfied, somewhat satisfied, somewhat dissatisfied, and very dissatisfied. Finally, the fourth factor was a proxy for Kalleberg's relationships with co-workers dimension. Again, although no specific questions from the survey asked of faculty members' relationships with colleagues, our factor, which included faculty members' perceptions of the extent to which their institution treats women and minority faculty fairly ($\alpha = 0.808$), served as a proxy to measure this dimension. The response categories for the perception of fairness items were: strongly agree, agree, disagree, and strongly disagree.

Table 2 Correlations of dependent measures

	Compensation and advancement	Equitable treatment	Convenience	Authority over work
Compensation and Advancement	1			
Equitable treatment	0.187**	1		
Convenience	0.496**	0.174**	1	
Authority over work	0.460**	0.128**	0.430**	1

** Correlation is significant at the 0.01 level (2-tailed)

We recognize the inherent limitation of attributing perceptions of institutional fairness to those of individual-level relationships with colleagues. We assert, however, that since institutions are comprised of individual faculty members and their colleagues, it is not implausible to believe the relationships that exist within a department may be related to the broader institutional culture. Moreover, to the extent that the present study contributes to an improved understanding of faculty perceptions of equitable treatment, we found this dimension too compelling to exclude from the analysis.

The four dependent variables constituted orthogonal factors. We found the correlation of the greatest magnitude ($r = 0.496$) between the convenience and compensation & advancement factors. We present the correlations between all dependent measures in Table 2. We standardized all of our dependent measures (i.e., with a mean equal to zero and a standard deviation of one). The unstandardized coefficients presented in the table can be interpreted as the proportion of a standard deviation change in the dependent variable as a result of a one-unit change in the independent variable. This allows for readers to consider the findings as effect sizes and compare the effect of one independent variable across dependent variables as well as compare the relative magnitude of the effects of various independent variables on one dependent variable (Hays 1994).

Level-1 Independent Variables

We included both diverse demographic characteristics of faculty as well as job-related measures to the level-1 models. The demographic characteristics included variables for gender (male was the reference category) as well as a set of dichotomous variables representing race/ethnicity. These included variables for Asian Pacific Islander, African American, Latino/a, and Native American (White was the reference category). We also added a dichotomous variable for disability (those who did not have a disability were the reference category) and first-generation college student status (those who were not first-generation students were the reference category). Finally, we included the age of the faculty member to the demographic level-1 block of variables.

Past research has suggested that the multiple roles played by faculty can create conflicting demands on their time leading to decreased job satisfaction (Hagedorn and Sax 2004; Peluchette 1993; Thompson and Dey 1998; Witt and Lovrich 1988). To test for possible effects that multiple roles might have on dimensions of job satisfaction, we added variables to measure the multiple roles of partner and parent and an interaction term of gender with these multiple role variables to the regression specification. We found, however, these variables to be insignificant and eliminated them from the prediction equation.

The job-related variables for the level-1 model included: a measure of experience, defined as the number of years in higher education; individual measures for the number of career articles, book, and presentations; whether the faculty member served as a primary or co-investigator on a funded project; salary; rank of the faculty member (full professors served as the reference category); year in current rank; and the percentage of time spent in teaching activities.

Level-2 Independent Variables

We derived our level-2 variables from the individual discipline that faculty respondents' indicated as their primary teaching discipline. Our sample included 120 disciplines. From these disciplines, we created level-2 variables that measured the proportion women in the discipline, the average number of articles, books, and presentations for the discipline; the proportion of faculty who were either primary or co-investigators on a funded project; and the average salary of the discipline.

Models

This study used hierarchical linear modeling (HLM) to examine the diverse demographic characteristics of faculty members and the contextual elements of the discipline related to dimensions of job satisfaction. The research questions implicitly hold the data to be multilevel with faculty members nested in disciplines. HLM is well-suited to analyze data at more than one level in that it allows simultaneous estimation of equations at both the individual and the disciplinary (i.e., group) level (Raudenbush and Bryk 2001; Hox 2002; Luke 2004).

We conducted the multilevel analyses for this study in several steps. We first created a model with no predictor variables. This one-way ANOVA, often called the null model, allowed the intercept to vary, thereby partitioning the variance within and between disciplines. Equation 1 displays the null model,

$$Y_{ij} = \beta_{0j} + r_{ij} \quad (1)$$

where Y_{ij} is the dependent variable, β_{0j} is the disciplinary mean, and r_{ij} is the deviation from the disciplinary mean for faculty member ij .

Estimating the null model allowed us to compute the intra-class correlation coefficient (ICC), which measures the proportion of variance in the dependent measure within and

Table 3 Variance components of the dependent measures

	Authority over work	Compensation and advancement	Convenience	Equitable treatment
Total variance	0.985	0.986	0.988	0.998
Variance within institutions	0.961	0.956	0.954	0.942
Variance between institutions	0.023	0.031	0.034	0.056
Proportion between institutions	0.024	0.031	0.034	0.056

between disciplines. Table 3 presents the variance components. The proportion of variance between disciplines ranged from 0.024 to 0.056. Although this may seem to be a trivial amount of between discipline variance, Porter and Swing (2006) argued that in higher education research, in which it is common to explain only 30% of the total variance, explaining even a small amount of between-group variance can increase our understanding of contextual processes.

In the second step of the modeling process, we created the within-discipline models (i.e., the level-1 or individual level models). We entered the variables into the within-discipline models in two blocks. The first block of variables consisted of the diverse demographic characteristics of the faculty (e.g., gender, race/ethnicity, first-generation college student status, disability status, and age).

$$Y_{ij} = \beta_{0j} + \beta_1(\text{Female}) + \beta_2(\text{African Am}) + \beta_3(\text{Latino/a}) + \beta_4(\text{APA}) + \beta_5(\text{NativeAm}) + \beta_6(\text{First-gen}) + \beta_7(\text{Disability}) + \beta_8(\text{Age}) + r_{ij} \quad (2)$$

In Eq. 2, the j subscripts indicate disciplines whereas the i subscripts indicate individual faculty members within j discipline. Because we have allowed the intercept to vary by discipline, a separate equation for each discipline is created.

A large body of research has suggested job-related variables such as experience, measures of productivity and research stature, academic rank, years in rank, tenure status, and the percent of time spent teaching influence job satisfaction (Hemmasi 1992; Olsen 1993; Pollicino 1998; Rosser 2005; VanHecke and Lawrence 2005). We entered job-related variables as the second block in the level-1 model. Equation 3 displays the model with diverse demographic and job-related variables included.

$$Y_{ij} = \beta_{0j} + \beta_1(\text{Female}) + \beta_2(\text{African Am}) + \beta_3(\text{Latino/a}) + \beta_4(\text{APA}) + \beta_5(\text{NativeAm}) + \beta_6(\text{First-gen}) + \beta_7(\text{Disability}) + \beta_8(\text{Age}) + \beta_9(\text{Experience}) + \beta_{10}(\text{Career articles}) + \beta_{11}(\text{Career books}) + \beta_{12}(\text{Career presentations}) + \beta_{13}(\text{PI/Co-PI}) + \beta_{14}(\text{Salary}) + \beta_{15}(\text{Assoc. Professor}) + \beta_{16}(\text{Asst. Professor}) + \beta_{17}(\text{Non-TT}) + \beta_{17}(\text{Years in rank}) + \beta_{18}(\% \text{ time teaching}) + r_{ij} \quad (3)$$

The final step in the modeling process specified the variables included in the disciplinary-level (i.e., level-2 or group-level) model. Because we were interested in the context of a discipline, we included both structural (e.g., proportion female) and job-related activity variables (e.g., percent time spent teaching, various measures of productivity, and salary of the discipline). Equation 4 shows the level-2 model, which adds to the previous equations but included the contextual variables of the discipline.

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Proportion Female}) + \gamma_{02}(\text{Mean career articles}) + \gamma_{03}(\text{Mean career books}) + \gamma_{04}(\text{Mean career presentations}) + \gamma_{05}(\text{Mean \% time teaching}) + \gamma_{06}(\text{Proportion PI/Co-PI}) + \gamma_{07}(\text{Mean salary}) + u_{0j} \quad (4)$$

We also tested various random slopes in the level-2 model. We found only the slope for “female” to vary significantly between disciplines. Thus, the effect of being female on various dimensions of job satisfaction differed depending on the faculty member’s discipline. For example, being female had a different effect for the job satisfaction of faculty members in

english than it does for faculty members in engineering. To account for this gendered effect, we modeled the female slope in our analyses of dimensions of job satisfaction.

Results

Intrinsic Motivation

Table 4 displays the model results from our single intrinsic job satisfaction measure, satisfaction with authority over the work itself. The demographic model suggests that female faculty members are significantly less satisfied with job-related autonomy than are their male peers in their discipline. It is important to note that because we have group mean centered the female dummy-code, the coefficient can be interpreted as the average female differential from male peers within the same discipline. When we include job-related variables into the models, the coefficients from the demographic block change very little. We observe a slight reduction in the female coefficient (from 18% of a standard deviation to 14% of a standard deviation). Finally, in our fully controlled model, we see that female faculty members are approximately 10% of a standard deviation less satisfied with their authority over their work than their male counterparts. In contrast to previous research, faculty of color (e.g., African American, Asian Pacific Islander, Latino, and Native American faculty) do not differ from their White colleagues statistically in terms of their satisfaction with authority over their worklife.

Although primarily in the model as a control variable, we find it is interesting that one of the other diverse demographic characteristic variables has a statistically significant effect on satisfaction with authority over the work itself. Faculty members who identify themselves as having a disability are less satisfied with this dimension. In the demographic model, faculty with disabilities are approximately 22% less satisfied than are their peers. When we introduce job-related controls and disciplinary controls into our models, this effect reduces to approximately 19% ($p < 0.10$).

The level-2 models offer some insight into disciplinary differences in satisfaction with authority over the work itself. The model of the intercept (average disciplinary satisfaction) suggests that faculty in disciplines with higher levels of research productivity, as measured by books and presentations, have higher levels of satisfaction with this form of autonomy than their colleagues in disciplines with lower levels of research productivity. When we model the female slope, we find that female faculty who are in disciplines with higher numbers of articles published and a higher percentage of time spent on teaching-related activities report higher levels of satisfaction with authority over their worklife than their female colleagues in disciplines with lower numbers of published articles and a lower percentage of time spent on teaching-related activities.

Extrinsic Satisfaction

Compensation and Advancement

Table 5 presents the model results for our three extrinsic satisfaction measures: compensation and advancement, convenience, and perceptions of equitable treatment of female faculty and faculty of color. In general, it appears that women are less satisfied with their compensation and opportunities for advancement than are their male counterparts. In the

Table 4 Hierarchical linear models for intrinsic faculty job satisfaction

	Authority over work		
	Demographic	Job-related	Full
Intercept	-0.001	0.012	0.044†
<i>Disciplinary characteristics</i>			
Proportion female			0.070
Mean career articles			-0.002
Mean career books			0.018†
Mean career presentations			0.001*
Mean percentage time teaching			0.002
Proportion PI/Co-PI			0.131
Mean Salary			0.000
Female	-0.178**	-0.135**	-0.099**
<i>Disciplinary characteristics</i>			
Proportion Female			0.233
Mean career articles			0.011*
Mean career books			0.018
Mean career presentations			-0.001
Mean percentage time teaching			0.026**
Proportion PI/Co-PI			0.389
Mean salary			0.000
Asian Pacific Islander	-0.145	-0.139	-0.133
African American	-0.105	-0.060	-0.077
Latino/a	-0.165	-0.164	-0.181
Native American	-0.011	0.042	0.076
Disability	-0.215*	-0.196*	-0.188†
First-generation	-0.040	-0.027	-0.025
Age	0.011**	0.000	-0.001
Experience		0.002	0.003
Career articles		-0.001	0.000
Career books		0.001	0.000
Career presentations		0.000	0.000
PI/Co-PI		0.035	0.010
Salary		0.000**	0.000**
Associate professor		-0.140*	-0.139*
Assistant professor		-0.212**	-0.205**
Non-tenure-track		-0.017	-0.001
Year in rank		0.001	0.002
Percentage time teaching		-0.002*	-0.002**
<i>Variance components</i>			
Variance between disciplines	0.022**	0.022**	0.015**
Variance female slope	0.078**	0.076**	0.048†
Variance between explained	7.2%	3.4%	36.8%
Variance within disciplines	0.931	0.913	0.914
Variance within explained	3.2%	5.0%	5.0%

Table 4 continued

	Authority over work		
	Demographic	Job-related	Full
<i>Reliabilities</i>			
Intercept	0.351	0.377	0.285
Slope	0.258	0.256	0.191

* $p < 0.05$, ** $p < 0.01$, † $p < 0.10$

demographic model, women are approximately 18% of a standard deviation less satisfied than men. This effect drops to 11% when we include job-related controls and drops to 9% and is no longer statistically significant when we include discipline-level measures.

We also observe rather large differences between racial/ethnic groups in their satisfaction with compensation and opportunities for advancement. Both Asian Pacific Islanders and Latino faculty are less satisfied with this component of extrinsic satisfaction than are their White peers. The demographic model suggests that Asian Pacific Islanders are 24% of a standard deviation less satisfied with compensation and advancement than Whites, and this effect changes little when we introduce controls into the models. Likewise, Latino faculty members are 39% of a standard deviation less satisfied with compensation and advancement than their White peers.

Although the effect is smaller than those observed with race/ethnicity, we find statistically significant net effects of first-generation college student status on satisfaction with compensation and advancement. Controlling for gender, race/ethnicity, disability, as well as a host of other confounding influences, faculty members who were first-generation college students are less satisfied than are their peers with opportunities for compensation and advancement. Faculty members who were the first in their family to go to college are 9% of a standard deviation less satisfied than their peers.

Our level-2 models suggest that research productivity of a discipline affects satisfaction with compensation and opportunity for advancement in a complex manner. The model of the intercept indicates a negative relationship with average satisfaction of faculty within a discipline and average number of articles produced by faculty within that discipline. In other words, as the number of articles within a discipline increases, the satisfaction with compensation and advancement of faculty within that discipline decreases. Interestingly, the relationship between presentations and satisfaction with compensation and advancement is positive. The female slope models also suggest a relationship between productivity of faculty within a field and satisfaction of female faculty members, but these relationships are in a different direction than those observed in the intercept model. Females in disciplines with higher numbers of published articles are more satisfied with their compensation and advancement than their female colleagues in disciplines with lower numbers of published articles, while females in fields with higher numbers of presentations are less satisfied than their female colleagues in fields with lower numbers of presentations.

Convenience

Gender appears to affect faculty satisfaction with the convenience dimension of their job, defined as satisfaction with time to conduct job-related tasks, negatively. In the fully

Table 5 Hierarchical linear models for extrinsic faculty job satisfaction

	Compensation and advancement				Convenience				Equitable treatment			
	Job-related		Full		Job-related		Full		Job-related		Full	
	Demographic	0.007	0.015	-0.016	-0.002	0.005	-0.098**	-0.093**	-0.122**			
Intercept	-0.012	0.007	0.015	-0.016	-0.002	0.005	-0.098**	-0.093**	-0.122**			
<i>Disciplinary characteristics</i>												
Proportion Female			-0.030			-0.199			-0.676**			
Mean career articles			-0.004*			-0.001			-0.005**			
Mean career books			0.000			0.002			-0.004			
Mean career presentations			0.001†			-0.001			-0.001			
Mean percentage time teaching			0.006			0.003			0.004			
Proportion PI/Co-PI			-0.161			0.054			-0.341*			
Mean salary			0.000			0.000			0.000*			
Female	-0.178**	-0.106†	-0.088	-0.276**	-0.235**	-0.231**	-0.712**	-0.698**	-0.717**			
<i>Disciplinary characteristics</i>												
Proportion female			-0.081			0.411			0.295			
Mean career articles			0.011*			0.012**			0.008†			
Mean career books			0.000			-0.003			-0.033†			
Mean career presentations			-0.002†			-0.001			0.004**			
Mean percentage time teaching			0.002			0.003			0.006			
Proportion PI/Co-PI			0.427			0.320			0.003			
Mean salary			0.000			0.000			0.000			
Asian Pacific Islander	-0.235**	-0.240**	-0.238**	0.078	0.070	0.063	-0.024	-0.027	-0.043			
African American	-0.035	0.038	0.033	0.120†	0.135†	0.132†	-0.421**	-0.405**	-0.394			
Latino/a	-0.371**	-0.380**	-0.385**	0.023	0.015	0.007	-0.389**	-0.395**	-0.380			
Native American	-0.429†	-0.363	-0.345	-0.182	-0.155	-0.152	-0.331	-0.315	-0.355			
Disability	-0.154	-0.116	-0.110	-0.295**	-0.294**	-0.294**	-0.089	-0.087	-0.089			
First-generation	-0.109*	-0.088†	-0.086†	-0.071†	-0.059	-0.057	-0.046	0.055	0.051			

Table 5 continued

	Compensation and advancement			Convenience			Equitable treatment		
	Demographic	Job-related	Full	Demographic	Job-related	Full	Demographic	Job-related	Full
	Age	0.017**	0.000	0.000	0.016**	0.006	0.006	-0.002	-0.006
Experience		0.005	0.005		0.005	0.005		0.002	0.002
Career articles		0.001	0.001		0.002**	0.002**		0.000	0.000
Career books		0.001	0.001		0.001	0.001		-0.002	-0.002
Career presentations		0.000	0.000		0.000†	0.000		0.000**	0.000**
PI/Co-PI		0.003	-0.005		0.116**	0.105*		-0.026	-0.006
Salary		0.000**	0.000**		0.000†	0.000†		0.000	0.000
Associate professor		-0.285**	-0.281**		-0.109*	-0.106†		-0.080	-0.071
Assistant professor		-0.324**	-0.317**		0.012	0.020		-0.118	-0.099
Non-tenure-track		-0.168*	-0.159*		0.157*	0.172**		-0.073	-0.086
Year in rank		-0.002	-0.001		0.005	0.005		0.002	0.000
Percentage time teaching		0.000	0.000		-0.001	-0.002		-0.001	-0.001
			0.050						
<i>Variance components</i>									
Variance between disciplines	0.031**	0.030**	0.026**	0.029**	0.028**	0.027**	0.054**	0.048**	0.024**
Variance female slope	0.114**	0.116**	0.115	0.023*	0.039*	0.038*	0.094**	0.094**	0.095**
Variance between explained	0.7%	2.3%	16.7%	13.2%	16.8%	19.6%	2.3%	13.5%	57.6%
Variance within disciplines	0.895	0.841	0.842	0.912	0.896	0.896	0.829	0.827	0.826
Variance within explained	6.3%	12.0%	11.9%	4.4%	6.2%	6.1%	12.1%	12.2%	12.3%
<i>Reliabilities</i>									
Intercept	0.427	0.436	0.404	0.415	0.410	0.403	0.558	0.534	0.392
Slope	0.330	0.345	0.343	0.110	0.167	0.164	0.310	0.310	0.313

* $p < 0.05$, ** $p < 0.01$, † $p < 0.10$

controlled model, women faculty are approximately one fourth of a standard deviation less satisfied with the convenience dimension of their job than are their male counterparts. Again, although primarily entered into the regression model to control for potential confounding influences, we find faculty with a disability are approximately 29% less satisfied with convenience than their peers without a disability.

With the exception of African American faculty, faculty of color do not differ significantly than White faculty in their satisfaction with convenience. In fact, African American faculty members are slightly more satisfied with convenience than White faculty members.

The level-2 models reveal few significant predictors of satisfaction with the convenience dimension. None of the variables included in the intercept model significantly predict satisfaction with convenience. However, mean career articles is a statistically significant positive predictor of the female slope. In other words, women in disciplines with higher levels of research productivity, as measured by articles published, are more satisfied than their female colleagues in disciplines with lower levels of research productivity on the convenience dimension of job satisfaction.

Equitable Treatment

Females and faculty of color perceive less equitable treatment of female faculty and faculty of color than do their peers. The demographic model suggests that females perceive 71% of a standard deviation less equitable treatment of female faculty and faculty of color than their male peers. This effect changes little when we enter controls into the models.

African American and Latino faculty differ from their White colleagues in their perceptions of equitable treatment for female faculty and faculty of color. In the uncontrolled model, African American faculty report 42% of a standard deviation lower perceptions of equitable treatment of female faculty and faculty of color than their White colleagues. This effect drops slightly to 39% of a standard deviation in the fully controlled model. In the full model, Latino faculty report 38% lower perceptions of equitable treatment of female faculty and faculty of color than Whites.

The intercept model indicates a negative relationship between gender composition of a discipline and perceptions of equitable treatment for female faculty and faculty of color. Faculty in disciplines with a high proportion of female faculty perceive less equitable treatment for female faculty and faculty of color than their peers in male-dominated disciplines. Research productivity is also negatively related to perceptions of equitable treatment. Faculty in fields with higher levels of research productivity, as measured by career articles and service as a principal investigator or co-principal investigator, perceive less equitable treatment of female and faculty of color than their peers in disciplines with lower levels of research productivity. Average salaries in a discipline are positively related with perceptions of equitable treatment. With every \$10,000 increase in average salaries in a discipline, perceptions of equitable treatment for women and faculty of color increases 7% of a standard deviation.

In general, for female faculty, those who are in a discipline with higher levels of research productivity, as defined by published articles and conference presentations, report more positive perceptions of equitable treatment for female and faculty of color than their peers in disciplines with lower than average levels of research productivity. On the other hand, female faculty, who are in disciplines that publish more than the average number of books, report less favorable perceptions of equitable treatment for female faculty and faculty of color.

Table 6 Effects of research productivity and disciplinary gender diversity on perception of equitable treatment

Independent variable	Academic discipline	# Career articles	Proportion female in discipline	Females' perceptions relative to males'
<i>High career articles</i>				
High proportion female	Public health	59.87	0.50	-0.85
Avg. proportion female	Immunology	59.73	0.36	-0.80
Low proportion female	Chemistry	64.43	0.03	-0.66
<i>Average career articles</i>				
High proportion female	Curriculum & instruction	20.45	0.66	-1.03
Avg. proportion female	German	24.37	0.38	-0.91
Low proportion female	Computer and information science	22.97	0.13	-0.82
<i>Low career articles</i>				
High proportion female	Library & archival science	7.54	0.70	-1.08
Avg. proportion female	Dramatic arts	7.25	0.44	-0.98
Low proportion female	Architecture & environmental Design	11.00	0.07	-0.83

Table 6 illustrates how perceptions of institutional equitable treatment of female faculty and faculty of color varies for male and female faculty when we take a closer look at specific disciplines. We chose nine representative disciplines on two dimensions: percentage of women in the discipline and average number of published articles. We looked at disciplines that were approximately one SD above and below the mean as well as average on both of these dimensions. These disciplines included the natural sciences, education, modern language, and applied health areas. It is not surprising that women's perception of the treatment of female faculty and faculty of color differs from their male colleagues. What is interesting, however, is the degree to which these differences vary by the productivity of the constituent disciplines. The table illustrates a greater variance in these perceptions between disciplines that have a lower level of research productivity, across differing proportions of female faculty. Women in chemistry, a discipline with high research productivity and low percentages of women, differ the least from their male colleagues. In contrast, women in library and archival science, a discipline characterized by having relatively low research productivity and high percentages of females, deviate the most from men in their discipline. Interestingly, women in high percentage female discipline with high productivity (i.e., public health) have relatively the same perceptions of fairness as females in disciplines with low research productivity and low female representation (i.e., architecture and environmental design).

Summary

Our findings suggest that the diverse demographic characteristics of faculty members affect job satisfaction. In general, female faculty members are less satisfied with dimensions of their job than are their male peers. With only one exception (compensation and advancement) and

only after we included disciplinary characteristics are women similar to men in terms of their job satisfaction. Latino faculty and faculty who are Asian Pacific Islanders are less satisfied with compensation and opportunities for advancement, while African American and Latino faculty perceive less equitable treatment for female faculty and faculty of color than their White colleagues. Although primarily entered into the regression specifications as controls, we also find faculty members with disabilities are less satisfied with the autonomy and convenience dimensions of their job than faculty without disabilities. Moreover, faculty who were first-generation college students are less satisfied with compensation and advancement than their colleagues who had more educational capital.

Disciplinary effects on faculty job satisfaction are less clear. Research productivity of a discipline is positively related with satisfaction with authority over the work itself, but it is negatively related with perceptions of equitable treatment. The proportion of females within a discipline is negatively related with perceptions of equitable treatment but is not significantly related with any of the other satisfaction measures. Similarly, average disciplinary salaries are positively related with perceptions of equitable treatment but do not significantly affect any of the other outcomes.

Models of the female slopes are equally as complex as models of the intercept. Women in disciplines where faculty produce a large number of articles are more satisfied with all of the dimensions of work examined in this study.

Discussion

These results suggest that diverse demographic characteristics do predict job satisfaction in America's research universities. The findings imply, net of job-related variables and characteristics of the discipline, that "who" faculty members appear to be, relative to their gender, race/ethnicity, able-bodiedness, and social class of origin, affects their satisfaction with various dimensions of their job. These results indicate that faculty with demographic characteristics outside the historical faculty norm (i.e., women, faculty of color, faculty with a disability, or those who were first generation college-students) are less satisfied with some aspects of their job than their colleagues who meet the historical norm (i.e., male, White, without a disability and who come from a higher social class), net of job-related factors and characteristics of the discipline.

With regard to our intrinsic dimension of job satisfaction, women were less satisfied with their authority over their job than men, even in the presence of controls for job-related variables and characteristics of the discipline. Aguirre (2000) described female faculty as feeling that they were asked to teach the service components of the curriculum, leaving the plum assignments to male faculty. Our results contribute further evidence to support Aguirre's point.

In terms of disciplinary characteristics, we also found women in disciplines with high levels of productivity, as measured by career articles, and percent time teaching to be more satisfied on the intrinsic dimension of job satisfaction. Given the distinction drawn between research-oriented and teaching-oriented faculty (Gottlieb and Yakir 1995), some may find these two disciplinary characteristics to be at odds with one another. In her review of the literature on female faculty satisfaction, however, Ropers-Huilman (2000) commented extensively on the personal gratification female faculty gained from their scholarship and from teaching and learning in the classroom. The satisfaction from one's scholarship and the influence of one's teaching to inform that scholarship is likely a manifestation of one having the autonomy to engage in work that one finds personally salient and compelling.

Thus, in disciplines where scholarship is encouraged, women's satisfaction in terms of their authority over their work increases.

We found women's lower levels of satisfaction with compensation and advancement to become non-significant after we introduced disciplinary characteristics in the full model. However, characteristics of the discipline did not reduce the negative effects of Asian Pacific Islanders, Latinos, or first-generation college students on satisfaction with compensation and advancement, net of individual-level salary and average salary of the discipline. Past research (e.g. Smith et al. 1996; Tierney and Bensimon 1996) has suggested women and some faculty of color may not have been mentored and/or socialized as graduate students in the art of salary negotiation or as junior faculty to know what "counts" for tenure and this might contribute to decreased levels of satisfaction on this dimension.

Interestingly, although the general effect of productivity as measured by average number of articles, was negative, women in disciplines with greater levels of productivity, were more satisfied with the compensation and advancement dimension than women in disciplines with lower levels of productivity. Olsen et al. (1995) found a relationship between women who were satisfied with their research and clarity of tenure criteria. Our result, coupled with their findings, suggests that in disciplines where the "currency for tenure" is clear (i.e., peer-reviewed journal articles), women are more satisfied.

We know of no other study which has expressly examined the effects of social class of origin on faculty job satisfaction, as measured by first-generation college student status. Given this gap in the literature, it is plausible that the lower levels of satisfaction with compensation and advancement among faculty who were first-generation college students may be the manifestation of having a different habitus than their middle- or upper-class colleagues (Dews and Law 1995; Gubitosi 1996; Ryan and Sackrey 1996)

In terms of the convenience dimension of job satisfaction, defined as the time available to advise students, prepare for class, keep current in the field, and work load, women reported lower levels of satisfaction than their male peers. For female faculty, this finding supports previous research which has found women shoulder a greater workload in terms of advising and other caretaking roles (Aguirre 2000; Turner 2002) as well as play the part of "academic mommies" (Ropers-Huilman 2000). From a disciplinary perspective, female faculty in disciplines with higher numbers of published articles are more satisfied than their peers in disciplines with lower numbers of published articles. This may be due to the fact that in these high productivity disciplines, the work is so clearly geared towards advancing the field through scholarship that female faculty feel more supported to focus their time in this regard.

In contrast to previous research, we found African American faculty were more satisfied with the convenience dimension of job satisfaction than their White colleagues. This result runs counter to much of the literature which has suggested that faculty of color, and specifically African American faculty, are inundated with claims on their time (Aguirre 2000; Cuádriz 1998; Thompson and Dey 1998; Turner 2002). From advising additional students and student organizations to serving on special task forces and committees, particularly those dealing with diversity, past research has found African American to be taxed and stressed.

Our final extrinsic dimension of job satisfaction examined faculty perception of equitable treatment of female faculty and faculty of color. Women, African American, and Latino faculty all had less favorable perceptions of equitable treatment of women and faculty of color than their male and White colleagues. Substantial effects remained even in the presence of controls for job-related variables and disciplinary characteristics. These

findings support past research, which has found pronounced gender and racial/ethnic differences in perceptions of equitable treatment towards women and faculty of color (Aguirre 1993, 2000; Bronstein and Farnsworth 1998; Hagedorn 1996; Marcus 1998; Niemann and Dovidio 2005; Ponjuan 2005; Peterson et al. 2004).

We found disciplinary characteristics had the strongest influence on the perception of equitable treatment of female faculty and faculty of color. Specifically, as the proportion of women in the discipline increased, the perception of equitable treatment for women and faculty of color decreased. This finding is consistent with the notion of comparable worth. Researchers who advance the comparable worth theory assert that because women are socially devalued, their work is commensurately devalued (England 1992; Feldberg 1984). Bellas (1994, 1997) detailed that higher proportions of women in an academic discipline had a significant negative, nonlinear effect on faculty salaries, with the strongest gendered effect on average faculty salaries in disciplines with less than 15–20% women. For faculty in highly feminized disciplines in which the work is already financially devalued, it is plausible that the notion of comparable worth may influence perceptions of unfair and inequitable institutional treatment of female faculty and faculty of color.

This study extends the work of others (Evans 2001; Olsen 1993; Pollicino 1998, Rosser 2004, 2005; Smart 1990) by “drilling down” into overall job satisfaction to understand the effects of diverse demographic characteristics and disciplinary context on faculty job satisfaction across a number of dimensions, including autonomy with the work itself, compensation and advancement, convenience, and perceptions of equitable treatment. Using the multi-dimensional job satisfaction framework advanced by Kalleberg (1977), the findings support previous research with women consistently reporting lower levels of satisfaction than men. Faculty of color tend to be less satisfied than their White colleagues but this dissatisfaction differs by race and ethnic group and depends on the dimension of job satisfaction examined.

The disaggregation of job satisfaction into dimensions of job satisfaction, the inclusion of other diverse demographic characteristics to isolate the unique effects of gender and race/ethnicity, as well as contextual measures of the discipline permits universities to be more responsive to the particular satisfaction areas in which attention to faculty work life may be needed. Specifically, retaining a diverse faculty may have less to do with financial satisfaction and far more to do with the campus climate in terms of satisfaction with one’s authority over the work itself, having adequate time to complete one’s work (i.e., the convenience dimension) and improving the perceptions of equitable treatment for women and faculty of color. As noted by Dr. William T. Trent, “it’s not about the money. You invest so much in your ideas that if there’s no appreciation, the money won’t fix it” (Collins 1999, p. 26).

These results call on those working in higher education to consider the impact institutional and disciplinary culture and environment may have on job satisfaction. Specifically, as culture and environment are a reflection of equity and welcome, to what extent is the academy supportive of those who bring a different perspective to the faculty role? Past research has suggested a host of organizational policies and programs for universities and colleges to institute with the goal of retaining a more diverse faculty (DiNitto et al. 1995; Gappa and MacDermid 1997; Smith et al. 1996; Tierney and Bensimon 1996; Ward and Wolf-Wendel 2004). From anticipatory socialization to formal mentoring and orientation programs, to work-family balance and tenure clock stoppage policies, higher education institutions are replete with recommended policies and programs. As the diversity of the professoriate begins to more closely resemble the diversity of the students in their classrooms, it is critical for our colleges and universities to move from affirmative

rhetoric to affirmative action in providing a work environment in which demographic characteristics no longer influence dimensions of faculty job satisfaction.

References

- Aguirre, A. (1993). Majoring and minority faculty perceptions in academe. *Research in Higher Education*, 34(3), 371–385.
- Aguirre, A. (2000). Women and minority faculty in the academic workplace: Recruitment, retention and academic culture. ASHE-ERIC Higher Education Report (vol. 27, no. 6). Washington: American Association for Higher Education.
- Allen, W., Epps, E., Guillory, E., Suh, S., Bonous-Hammarth, M., & Stassen, M. (2002). Outsiders within: Race, gender, faculty status in U.S. higher education. In W. Smith, P. Altbach, & K. Lomotey (Eds.), *The racial crisis in American higher education* (pp. 189–220). Albany: State University of New York Press.
- Astin, H., Antonio, A., Cress, C., & Astin, A. (1997). *Race and ethnicity in the American professoriate, 1995–1996*. Los Angeles: Higher Education Research Institute.
- Austin, A. (1996). Institutional and departmental cultures: The relationship between teaching and research. *New Directions for Institutional Research*, 90, 57–66.
- Barnes, L., Agago, M., & Coombs, W. (1998). Effects of job-related stress on faculty intention to leave academia. *Research in Higher Education*, 39(4), 457–469.
- Becher, T. (1987). The disciplinary shaping of the profession. In B. R. Clark (Eds.), *The academic profession: National, disciplinary, and institutional settings* (pp. 271–303). Berkeley: University of California Press.
- Bellas, M. (1994). Comparable worth in academia: The effects on salaries of sex composition and labor-market conditions of academic disciplines. *American Sociological Review*, 59(6), 807–821.
- Bellas, M. (1997). Disciplinary differences in faculty salaries: Does gender bias play a role. *Journal of Higher Education*, 68(3), 299–321.
- Biglan, A. (1973). Relationships between subject matter characteristics and the structure and output of university departments. *Journal of Applied Psychology*, 57(3), 204–213.
- Bower, B. (2002). Campus life for faculty of color: Still strangers after all these years? *New Directions for Community Colleges*, 118, 79–87.
- Bronstein, P. (1993). Challenges, rewards, and costs for feminist and ethnic minority scholars. *New Directions for Teaching and Learning*, 53, 61–70.
- Bronstein, P., & Farnsworth, L. (1998). Gender differences in faculty experiences of interpersonal climate and processes for advancement. *Research in Higher Education*, 39(5), 557–585.
- California News Reel (Producer). (1996). Shattering the silences: Minorities break into the ivory tower [Motion picture]. United States.
- Chronister, J. L., Gansneder, B. M., Harper, E., & Baldwin, R. G. (1997). Full-time non-tenure track faculty: Gender differences. *NEA Higher Education Research Center Update*, 3(5), 1–4.
- Clark, B. R. (1987). *The academic life: Small worlds, different worlds*. Princeton: The Carnegie Foundation for the Advancement of Teaching.
- Collison, M. (1999). Achieving career satisfaction in the academy. *Black Issues in Higher Education*, 16(20), 26–28.
- Cuádriz, D. H. (1998, October). Questions worth asking: Observations from an assistant professor. Paper presented at Keeping Our Faculties: Addressing the Recruitment and Retention of Faculty of Color in Higher Education conference, Minneapolis.
- Dews C. L. B., & Law C. L. (Eds.) (1995). *This fine place so far from home: Voices of academics from the working class*. Philadelphia: Temple University Press.
- Dey, E. (1994). Dimensions of faculty stress: A recent survey. *Review of Higher Education*, 17(3), 305–322.
- Diener, T. (1985). Job satisfaction and college faculty in two predominantly Black institutions. *Journal of Negro Education*, 54(4), 558–565.
- DiNitto, D., Aguilar, M. A., Franklin, C., & Jordan, C. (1995). Over the edge? Women and tenure in today's academic environment. *Affilia: Journal of Women and Social Work*, 10(3), 255–279.
- Duncan, C., Jones, K., & Moon, G. (1998). Context, composition, and heterogeneity: Using multilevel models in health research. *Social Science and Medicine*, 46, 97–117.
- Eimers, M. T. (1997). The role of intrinsic enjoyment in motivating faculty. *Thought & Action*, 13(2), 125–142.
- England, P. (1992). *Comparable worth: Theories and evidence*. New York: Aldine.

- Evans, L. (2001). Delving deeper into morale, job satisfaction, and motivation among education professionals: Re-examining the leadership dimension. *Educational Management & Administration*, 29(3), 291–396.
- Fairweather, J. S. (1996). *Faculty work and the public trust: Restoring the value and teaching and public service in American academic life*. Needham Heights: Allyn & Bacon.
- Feldberg, R. L. (1984). Comparable worth: Toward a theory and practices in the United States. *Signs*, 10, 311–328.
- Finkelstein, M. J., Seal, R. K., & Schuster, J. H. (1998). *The new academic generation: A profession in transformation*. Baltimore: John Hopkins Press.
- Fjortoft, N. (1993, May). *Factors predicting commitment to the university*. Paper presented at the annual forum of the Association for Institutional Research, Chicago.
- Fontaine, D.C., & Greenlee, S. P. (1993). Black women: Double solos in the workplace. *Western Journal of Black Studies*, 17(4), 121–125.
- Gainen, J., & Boice, R. (1993). *Building a diverse faculty* (New Directions for Teaching and Learning, No. 53). San Francisco: Jossey-Bass.
- Gappa, J. M., & MacDermid, S. M. (1997). *Work, family, and the faculty career*. *New Pathways: Faculty Career and Employment for the 21st Century Working Paper Series, Inquiry #8*. Washington: American Association for the Advancement of Science.
- Garza, H. (1993). Second-class academics: Chicano/Latino faculty in U.S. universities. *New Directions for Teaching and Learning*, 53, 33–41.
- Gormley, D. K. (2003). Factors affecting job satisfaction in nurse faculty: A meta-analysis. *Journal of Nursing Education*, 42(4), 174–178.
- Gottlieb, E. E., & Yakir, R. (1995). *Perception of the research-teaching nexus and job satisfaction: An analysis from the Carnegie International Survey of the Academic Profession*. Paper retrieved from ERIC Reproduction Services: ED390320.
- Gouldner, A. W. (1957) Cosmopolitans and locals: Toward an analysis of latent social roles—I. *Administrative Science Quarterly*, 2(3), 281–306.
- Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2004). *Survey methodology*. Hoboken: John Wiley & Sons, Inc.
- Gubitosi, A. (1996, October). *The impact of social interaction norms and reward system norms on underrepresented faculty at a four-year public urban university: A preliminary report*. Poster presented at the Association for the Study of Higher Education, Memphis.
- Hagedorn, L. (1996). Wage equity and female faculty job satisfaction: The role of wage differentials in a job satisfaction causal model. *Research in Higher Education*, 37(5), 569–598.
- Hagedorn, L. (2000). *What contributes to job satisfaction among faculty and staff* (New Directions for Institutional Research, No. 105). San Francisco: Jossey-Bass.
- Hagedorn, L., & Sax, L. (2004). Marriage, children, and aging parents: The role of family-related factors in faculty job satisfaction. *Journal of Faculty Development*, 19(2), 65–76.
- Hays, W. (1994). *Statistics* (5th ed.). Ft. Worth: Harcourt Brace College Publishers.
- Hearn, J. (1999). Pay and performance in the university: An examination of faculty salaries. *Review of Higher Education*, 22(4), 391–410.
- Hemmasi, M. (1992). Correlates of pay and benefit satisfaction: The unique case of public university faculty. *Public Personnel Management*, 21(4), 429–443.
- Hox, J. (2002). *Multilevel analysis*. Mahwah: Lawrence Erlbaum Associates.
- Johnsrud, L. (1993). Women and minority faculty experiences: Defining and responding to diverse realities. *New Directions for Teaching and Learning*, 53, 3–16.
- Johnsrud, L. (2002). Measuring the quality of faculty and administrative worklife: Implications for college and university campuses. *Research in Higher Education*, 43(3), 379–395.
- Johnsrud, L., & Sadao, K. (1998). The common experience of “otherness:” Ethnic and racial minority faculty. *Review of Higher Education*, 21(4), 315–342.
- Kalleberg, A. (1977). Work values and job rewards: A theory of job satisfaction. *American Sociological Review*, 42(1), 124–143.
- Laden, B., & Hagedorn, L. (2000). Job satisfaction among faculty of color in academe: Individual survivors or institutional transformers? *New Directions for Institutional Research*, 105, 57–66.
- Ladson-Billings, G. (1997). For colored girls who have considered suicide when the academy’s not enough: Reflections of an African American woman scholar. In A. Neumann, & P. Peterson (Eds.), *Learning from our lives: Women, research, and autobiography in education*. New York: Teachers College Press.
- Luke, D. (2004). *Multilevel modeling*. Thousand Oaks: Sage Publications.
- Marcus, L. R. (1998, November). *Threats to staff diversity: A case study*. Paper presented at the annual meeting of the Association for the Study of Higher Education, Miami.

- McElrath, K. (1992). Gender, career disruption, and academic rewards. *Journal of Higher Education*, 63(3), 269–281.
- Moody, J. (2004). *Faculty diversity: Problems and solutions*. New York: Routledge Farmer.
- National Center for Education Statistics [NCES]. (1999). *National study of postsecondary faculty: Faculty questionnaire*. Washington: U.S. Department of Education.
- NCES. (2002). *1999 national study of postsecondary faculty (nsopf:99): Methodology report* (NCES No. 2002–154). Washington: U.S. Department of Education.
- Neal, J. E. (1990, November). An examination of disciplinary differences in factors related to job satisfaction among liberal arts college faculty members. Paper presented at the annual meeting of the Association for the Study of Higher Education, Portland.
- Neumann, Y., & Finaly, N. (1991). Determinants and correlates of faculty burn-out in U.S. research universities. *Journal of Educational Administration*, 29(3), 80–92.
- Niemann, Y. F., & Dovidio, J. F. (2005). Affirmative action and job satisfaction: Understanding underlying processes. *Journal of Social Issues*, 61(3), 507–523.
- Olsen, D. (1993). Work satisfaction and stress in the first and third year of academic appointment. *Journal of Higher Education*, 64(4), 453–471.
- Olsen, D., Maple, S., & Stage, F. (1995). Women and minority faculty job satisfaction: Professional role interests, professional satisfactions, and institutional fit. *Journal of Higher Education*, 66(3), 267–293.
- Opp, R. D. (1992, October/November). *Disciplinary differences in faculty career satisfaction*. Paper presented at the annual meeting of the Association for the Study of Higher Education, Minneapolis.
- Peluchette, J. V. E. (1993). Subjective career success: The influence of individual difference, family, and organizational variables. *Journal of Vocational Behavior*, 43(2), 198–208.
- Perna, L. (2001). Sex differences in faculty salaries: A cohort analysis. *Review of Higher Education*, 24(3), 283–307.
- Peterson, N. B., Friedman, R. H., Ash, A. S., Franco, S., & Carr, P. L. (2004). Faculty self-reported experience with racial and ethnic discrimination in academic medicine. *Journal of General Internal Medicine*, 19(3), 259–265.
- Plascak-Craig, F. D., & Bean, J. P. (1989, November). *Education faculty job satisfaction in major research universities*. Paper presented at the annual meeting of the Association for the Study of Higher Education, Atlanta.
- Pollicino, E. B. (1998, May). *Derivation of variables from the National Survey of Postsecondary Faculty for use in secondary data analysis*. Paper presented at the annual forum of the Association for Institutional Research, Minneapolis.
- Ponjuan, L. (2005). Understanding the work lives of faculty of color: Job satisfaction, perception of climate, and intention to leave. *Dissertation Abstracts International*, 66(08-A), UMI No. AAT3186734.
- Porter, S. R., & Swing, R. (2006). Understanding how first-year seminars affect persistence. *Research in Higher Education*, 47(1), 89–109.
- Raudenbush, S. W., & Bryk, A. S. (2001). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks: Sage Publications.
- Ropers-Huilman, B. (2000). Aren't you satisfied yet? Women faculty members' interpretation of their academic work. *New Directions for Institutional Research*, 105, 21–32.
- Rosser, V. J. (2004). Faculty members' intentions to leave: A national study on their worklife and satisfaction. *Research in Higher Education*, 45(3), 223–234.
- Rosser, V. J. (2005). Measuring the change in faculty perceptions over time: An examination of their worklife and satisfaction. *Research in Higher Education*, 46(1), 81–107.
- Ryan, J., & Sackrey, C. (1996). *Strangers in paradise: Academics from the working class*. Lanham: University Press of America.
- Smart, J. (1990). A causal model of faculty turnover intentions. *Research in Higher Education*, 31(5), 405–424.
- Smart, J., Feldman, K., & Ethnigton, C. (2000). *Academic disciplines: Holland's theory and the study of college students and faculty*. Nashville: Vanderbilt University Press.
- Smith, D., Wolf, L., & Busenberg, B. (1996). *Achieving faculty diversity: Debunking the myths*. Washington: American Association of Colleges and Universities.
- Tack, M., & Patitu, C. (1992). *Faculty job satisfaction: Women and minorities in peril*. ASHE-ERIC Higher Education Report no. 4. Washington: American Association for Higher Education.
- Terpstra, D. E., & Honoree, A. L. (2004). Job satisfaction and pay satisfaction levels of university faculty by discipline type and by geographic region. *Education*, 124(3), 528–539.
- Thompson, C., & Dey, E. (1998). Pushed to the margins: Sources of stress for African American college and university faculty. *Journal of Higher Education*, 69(3), 324–345.

- Tierney, W. G., & Bensimon, E. M. (1996). *Promotion and tenure: Community and socialization in academe*. Albany: State University of New York Press.
- Toutkousian, R. K. (1998). Racial and marital status differences in faculty pay. *Journal of Higher Education*, 69(5), 513–541.
- Toutkousian, R. K. (1999). The status of academic women in the 1990s No longer outsiders, but not yet equals—evidence of disaggregate pay disparities from the 1988 and 1993 NCES surveys. *The Quarterly Review of Economics and Finance*, 39(5), 679–698.
- Trower, C., & Chait, R. (2002). Faculty diversity: Too little for too long. *Harvard Magazine*, 33–37, 98.
- Turner, C. S. V. (2002). Women of color in academe: Living with multiple marginality. *Journal of Higher Education*, 73(1), 74–93.
- Turner, C. S. V., & Myers, S. (2000). *Faculty of color in academe: Bittersweet success*. Needham Heights: Allyn & Bacon.
- Umbach, P. D. (2006, April). *Gender equity in the academic labor market: An analysis of academic disciplines*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.
- VanHecke, J. R., & Lawrence, J. H. (2005, November). *Contextualized faculty satisfaction and inclinations to persist: Differences by gender, discipline, and institution*. Paper presented at the annual meeting of the Association for the Study of Higher Education, Philadelphia.
- Ward, K., & Wolf-Wendel, L. (2004). Academic motherhood: Managing complex roles in research universities. *Review of Higher Education*, 27(2), 233–257.
- Witt, S., & Lovrich, N. (1988). Sources of stress among faculty: Gender differences. *Review of Higher Education*, 11(3), 269–284.