Chapter 7.
University and College Faculty

> If you feel like you don't fit or belong—for whatever reasons—your satisfaction is bound to be lower because not only is it human nature to want to belong ... it is crucial for getting tenure.
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> —Cathy Trower[9]

Women's representation among faculty in STEM disciplines has increased over time, but women remain underrepresented among tenured faculty. In the fields of physics, engineering, and computer science, women are scarce at every level, so attracting and retaining female faculty is critical. For progress to occur in STEM fields, teachers and academic leaders must be selected from the entire pool of talented and qualified individuals; female faculty can also help recruit and retain female students and students from other underrepresented groups. Job satisfaction is a key to retention, but women and people of color are more likely than white men to report that they are less satisfied with the academic workplace, and, hence, women are more likely to leave the academy earlier in their career (Trower & Chait, 2002).

Cathy Trower is the research director of the Collaborative on Academic Careers in Higher Education (COACHE) at Harvard University. COACHE includes more than 130 colleges and universities that participate in the Tenure-Track Faculty Job Satisfaction Survey, which is administered annually to all full-time, tenure-track faculty at member institutions and asks about key components of faculty satisfaction. It asks junior faculty members to assess their experiences regarding promotion and tenure; the nature of their work; policies and practices; and the general climate, culture, and level of collegiality on their campuses. Trower and her colleagues found that female STEM faculty were less satisfied than their male colleagues with how well they "fit" in their departments, opportunities to work with senior faculty, and institutional support for having a family while on the tenure track.

Trower and Richard Chait founded COACHE in 2002 to help improve the academic environment for junior faculty and assist colleges and universities in recruiting, retaining, and increasing the satisfaction of early career faculty. Junior faculty are most at risk to leave academia during the early years, and their departure can incur both economic and cultural costs to institutions. Trower became interested in the topic of junior faculty satisfaction while she was working on a doctoral degree in higher education administration.

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Although the data collected using the COACHE survey are not representative of all universities or colleges, they provide critical information about a current cohort of early career faculty. Additionally the data allow Trower and her colleagues to explore whether levels of satisfaction differ significantly by gender and academic discipline. Trower's findings on satisfaction among STEM faculty are described below. The data were collected from 1,809 STEM faculty members (587 women and 1,222 men) at 56 universities.

THE NATURE OF WORK AND DEPARTMENTAL CLIMATE

For both female and male STEM faculty, the nature of the work and the departmental climate were the most important factors predicting job satisfaction, and the two factors were equally important for both groups. Within the climate category, the researchers at COACHE identified 10 climate dimensions related to faculty satisfaction that are "actionable" by administrators (Trower, 2008):

- Fairness of evaluation by immediate supervisor
- Interest senior faculty take in your professional development
- Your opportunities to collaborate with senior colleagues
- Quality of **professional** interaction with **senior** colleagues
- Quality of **personal** interaction with **senior** colleagues
- Quality of **professional** interaction with **junior** colleagues
- Quality of **personal** interaction with **junior** colleagues
- How well you "fit" (i.e., your sense of belonging) in your department
- Intellectual vitality of the senior colleagues in your department
- Fairness of junior faculty treatment within your department

Female STEM faculty were less satisfied than their male peers were with all 10 factors and significantly less satisfied with three: sense of fit, opportunities to collaborate with senior colleagues, and the perception of fair treatment of junior faculty in one's department. The results of the COACHE survey show sense of fit to be the single most important climate factor predicting job satisfaction.

UNPACKING SENSE OF FIT

Trower defines "sense of fit" as one's sense of belonging in her or his department. In an interview with AAUW, she explained, "If you feel like you don't fit or belong—for whatever reasons—your satisfaction is bound to be lower, because not only is it human nature to want to belong ... it is crucial for getting tenure." She found that the sense of fit was enhanced for both

women and men when they felt that they had good professional and personal interactions with colleagues, senior faculty had an interest in their professional development, and junior faculty were treated fairly.

Although good professional and personal interactions with colleagues are important for both female and male STEM faculty, such interactions may be critically important for women. Many STEM departments in various disciplines have only one or two women, so many female faculty may be the only women in their department. For example, most doctorate-granting geosciences institutions have only one woman per department (Holmes & O'Connell, 2003). More than one-half of all physics departments had only one or two women on their faculty in 2002, and only 20 physics departments had four or more female faculty (Ivie & Ray, 2005). "Because of the low numbers of women, isolation and lack of camaraderie/mentoring are particularly acute problems for women in fields such as engineering, physics, and computer science" (Rosser, 2004, p. xxii).

Isolation is a critical problem since it can be a major source of dissatisfaction among female faculty and can influence their decision to leave. Women report being excluded from informal social gatherings and more formal events, as well as from collaborating on research or teaching (Massachusetts Institute of Technology, 1999). Women are also less likely than their male colleagues to have role models or mentors and, therefore, get limited advice on navigating the workplace, professional and career development, and advancing in their careers (Macfarlane & Luzzadder-Beach, 1998; Rosser, 2004). A recent study by the National Academy of Sciences found that male faculty were significantly more likely than female faculty to report having discussions with colleagues about research, salary, and benefits. The study results also emphasized the importance of fit, highlighting that "the most problematic kind of attrition involves faculty who leave because they feel unwelcome. These faculty members have not failed but they also have not fit in, and the departments they leave have invested time, money and other resources that can be lost" (National Research Council, 2009, p. 98).

THE IMPORTANCE OF MENTORING

To promote a better sense of fit and belonging among faculty, Trower recommends that departments provide mentoring for all faculty. Mentoring helps address the feelings of isolation and marginalization that women in academic settings often report. Among STEM faculty in the COACHE survey, women rated the importance of formal mentoring significantly higher than men did. Trower told AAUW, "Mentoring is crucial for STEM women because without it they might not be privy to the good old boys' club or behind the scenes conversations that are crucial to fitting in the department and to getting tenure." Interestingly, women

rated the importance of informal mentoring even higher than formal mentoring. Trower believes that this may be because "informal relationships arise organically, and because they are not part of a formal process, they may feel more natural, closer, more trusting and honest, which may be especially important to women in STEM, who are often in a numerical minority in their departments."

THE ROLE OF FAMILY RESPONSIBILITIES

The ability to balance work and family responsibilities also contributes to overall satisfaction, especially for STEM women in the COACHE sample. Overall, female faculty were less likely than male faculty to agree that their institutions supported having and raising a child while on the tenure track. Female STEM faculty were the least likely to agree with those sentiments and were significantly less satisfied than their male peers were with the balance between professional and personal time. Although difficulty trying to balance work and family responsibilities is not specific to women in STEM, Trower suggests that the nature of scientific research may make work-family balance particularly challenging for female STEM faculty: "The lab knows no official stop time—it's an unrelenting 24/7. It's difficult to just pack up and go home. Stopping for any period of time, to take advantage of stop-the-tenure-clock leave for instance, could be deadly to your research program." Although the effectiveness of work-life balance policies were significant predictors of women's satisfaction, both women and men in science and engineering fields found child care on their campuses lacking. Trower explains: "Child care is a huge issue everywhere I go. Most campuses do not offer adequate, if any, child care."

Women's representation among STEM faculty has increased significantly during the last four decades; however, women are still underrepresented in STEM fields and are more likely than men to work in lower faculty ranks. The findings from the COACHE survey indicate that both female and male faculty satisfaction are based on similar factors, including the nature of the work and departmental climate. Chilly departmental climates and isolation contribute to dissatisfaction among women, which can result in their departure from higher education. Family responsibilities and a department's work-life balance policies also have a greater influence on the satisfaction of female faculty compared with that of male faculty. This research suggests that if institutions improve the climate of their STEM departments as well as their work-life balance policies, they can better recruit and retain female faculty. Furthermore, because the factors that predict satisfaction are the same for female and male faculty in STEM, all faculty and institutions are likely to benefit from these improvements.

RECOMMENDATIONS

Trower recommends that departments focus on fit to improve faculty satisfaction and the experiences of female faculty in science and engineering disciplines:

- **Conduct departmental reviews to assess the climate for female faculty.**

  Although the climate within the department is important to both female and male faculty, it appears to be more important for female faculty and their overall satisfaction. When female faculty experience negative climates, they report lower job satisfaction and consider leaving their positions.

- **Create an environment that supports retention.**

  Ensure that new faculty are oriented to the university, school, and department. Cultivate an inclusive departmental culture by communicating consistent messages to all faculty, providing opportunities for junior faculty to collaborate with senior faculty, and ensuring the fair treatment of tenure-track faculty.

- **Ensure mentoring for all faculty.**

  Both formal and informal mentoring of junior faculty are important, and the latter is crucial to support the integration of women into science and engineering departments. Formal mentoring programs should be monitored and evaluated for effectiveness, and departments should foster informal mentoring by encouraging senior faculty to actively reach out to junior faculty.

- **Support faculty work-life balance.**

  Departments and universities should implement effective policies that support work-life balance. Stop-tenure-clock policies should allow both female and male faculty to stop their tenure clock for parental leave for anywhere from three months to a year after the birth or adoption of a child. These policies ensure that parents are not penalized for reduced productivity during the tenure-evaluation period. Providing on-site, high-quality child care also supports work-life balance and is important to female faculty satisfaction in particular.