

2006-2471: WHAT WOMEN WANT: FEMALE-FRIENDLY FACULTY RECRUITMENT

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What Women Want: Female-Friendly Faculty Recruitment

Abstract

Much of the economic vitality and the quality of life we enjoy as a nation is a direct result of the inspiration and innovation of scientists and engineers. Our future well-being appears to be even more dependent on technological advances. Where will the workforce be developed that will continue to fuel this growth? Science and engineering (S&E) enrollments have remained relatively stagnant for the past 20 years. If this trend continues, what will happen to the economy? The authors recognize the need to increase overall enrollments in S&E fields, and the opportunity to increase enrollments by attracting and retaining students from underrepresented demographic population groups. Women represent over half the nation's population and nearly half of the undergraduate enrollment, yet are dramatically underrepresented in the technical and academic community. Increasing participation of underrepresented groups in S&E will not only increase the available technical workforce, but will also interject ideas and viewpoints inherent with increased diversity. The development of a diverse faculty will provide mentors and role models to attract and support an increasingly diverse student body that otherwise might not pursue a technical career. To create an academic culture that promotes diversity and equity within the faculty and administration and that provides a supportive environment and appropriate mentors and role models for an increasingly diverse student body has become Boise State University's priority. This paper includes data on our university's representation of women faculty in science and engineering, including measurable progress in recent years that places us above the national norm. Additionally, we provide focus group results on climate for female science and engineering faculty and describe what has led not only to successful searches but also to unsuccessful ones. In this way changes in policies, procedures and perceptions during faculty recruitment are focused most effectively.

Introduction

A panel discussion on Professional Development and Women Faculty was held in June 2005 at the American Society for Engineering Education annual conference in Portland.¹ Engineering faculty panelists, including the authors, shared how they as women navigated pathways in successful academic careers. During the discussion period, a young woman from the audience declared, "I chose to have a family instead." Implicit in her remarks was the presumption that the barriers and drawbacks of academic tenure outweigh the benefits and opportunities.

Perhaps a non academic position is the best choice for this young woman's life goals. Or perhaps she is giving up her dream to advance scientific knowledge through innovative research or her dream to deliver excellent teaching that nurtures students and workforce leaders. The exclusion in academia of talented women and others from underrepresented groups does disservice to our nation's scientific potential and economic and social interests. Business leaders in the United States have warned that a shortage of skilled technology workers will threaten their ability to compete in the global market, and that the lack of women and minorities in technology fields exacerbates the shortage.²

Perhaps the young woman had no female professors as role models. A women student in science and engineering (S&E) is likely to earn a Bachelor of Science degree without ever being taught by a female professor in her discipline.³ Women make up less than 21 percent of S&E faculty in four-year colleges and universities, with a much smaller percentage of women in leadership positions, and only about two percent of women faculty from minority populations.⁴ The lack of women role models helps create a situation where women students are less likely to enter and remain in S&E, perpetuating the cycle of underrepresentation.³ Increasing the number of women in academic faculty and leadership positions is expected to result in more women students and workforce professionals in science and technology.

Perhaps the young woman observed the women professors at her graduate institution struggling to balance family and academe, facing inflexible policies in academic institutions concerning issues such as family/maternity leave or tenure clock. Whatever the case, this young woman's aversion to an S&E faculty career and the lack of women faculty in general deprives students, universities and research endeavors of excellent leadership, innovative scientists and engineers, and diverse perspectives. Universities must work, individually and collectively, to facilitate a transformation for women in academia. This transition must include policy, procedural, and perceptual changes⁵ and universities must recognize that increasing faculty diversity is not simply about accommodating women and minorities but about incorporating their unique experiences and goals to achieve excellence in our universities, our nation and our world⁶.

Representation of Women in Science and Engineering Faculty

Even though the President's Cabinet of Boise State University has equitable representation of women administrators and women are 54 percent of the student body, women faculty are outnumbered by men faculty, comprising 39 percent of tenure track faculty overall. An analysis based upon tenure track faculty in S&E departments within five colleges (Table 1) indicates that there is significant room for improvement in terms of participation of women and ethnic groups. Tenure track S&E faculty in these 20 departments currently total 180; of these faculty, 45 are women (25 percent). As a comparison, women hold 48 percent of all tenure track faculty positions in all other departments in the university. Figure 1 shows the numbers of all tenure track male and female faculty by rank and college for the departments in Table 1. The largest disparity between genders occurs among faculty in the College of Engineering and in the science departments within the College of Arts & Sciences. At the assistant professor level, in 2004-2005 only one (14 percent) and four (21 percent) of the faculty positions in Engineering and Arts & Sciences, respectively, were held by women. Our university's low percentage overall of women assistant professors in S&E mirrors the national situation, where men outnumber women as entry-level assistant professors, even in the science fields where women earn a majority of doctorates.³

Improvement in the representation of women on the Boise State University faculty will only be realized if specific emphasis is placed on assuring a balanced approach to recruitment and promotion. One method to assess the impact of management practices is to identify the history of faculty "flux." Such analysis helps assess the success of current practices in achieving the goal of equalizing opportunity for all population groups.⁷ Figure 2 shows the movement of S&E male

faculty members resulting from new hires, transfers, promotions, and terminations; and Figure 3 presents this information for all S&E female faculty.

College of Business & Economics	College of Education	College of Engineering	College of Arts & Sciences	College of Social Sciences & Public Affairs (SSPA)
Economics	Kinesiology	Civil Engineering	Biology	Anthropology
Networking, Operations & Information Systems		Computer Science	Chemistry	Psychology
		Construction Management	Geosciences	Sociology
		Electrical & Computer Engineering	Mathematics	Public Policy & Administration
		Instructional & Performance Technology	Physics	Political Science
		Materials Science & Engineering		
		Mechanical Engineering		

Table 1: Departments Representing Science and Engineering Faculty in Five Colleges

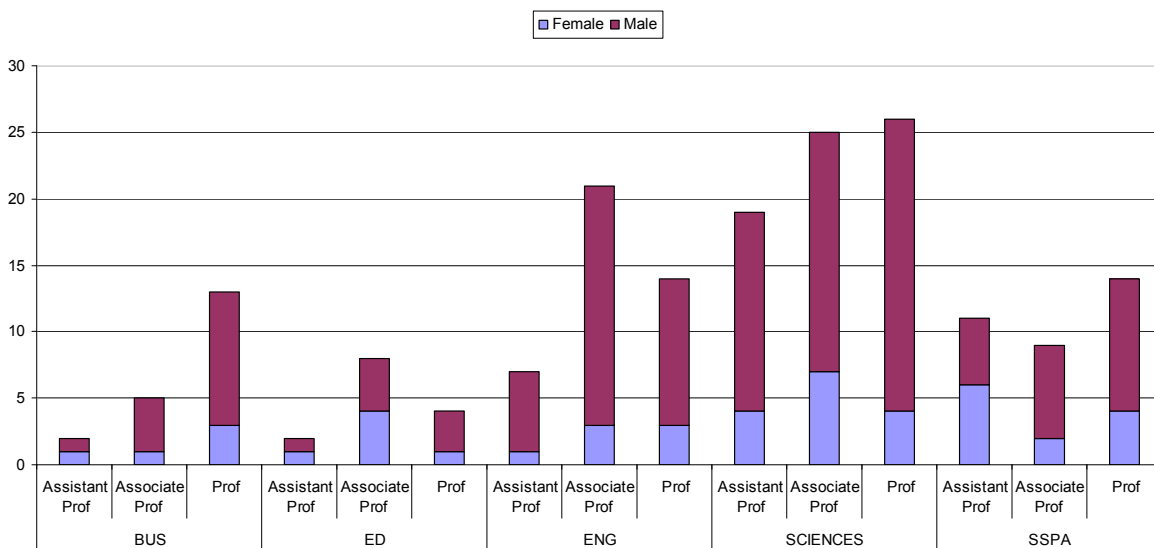


Figure 1: Number of Science and Engineering Faculty by College, Rank and Gender

Although these data show a higher resignation and transfer rate among women at the assistant professor level than among men, the data also indicate favorable trends both in terms of recent hiring practices and promotions for women. The current level of 45 women (25 percent) is up from 38 women (21 percent) in 2002. During the period from 2002 to 2005 there were a total of 22 promotions, of which 46 percent were to women faculty. Additionally, 41 percent of new S&E faculty hires were women during this time period. These data indicate that recent management practices are beginning to reverse the long term trend of preferentially hiring and promoting male S&E faculty. An analysis of tenure data also supports this trend, with 40 percent of tenure attainment in 2005 awarded to women in the 20 S&E departments. Finally, of the 20 S&E department chairs, only three (15 percent) are women. However, two deans out of the five colleges represented are female (40 percent).

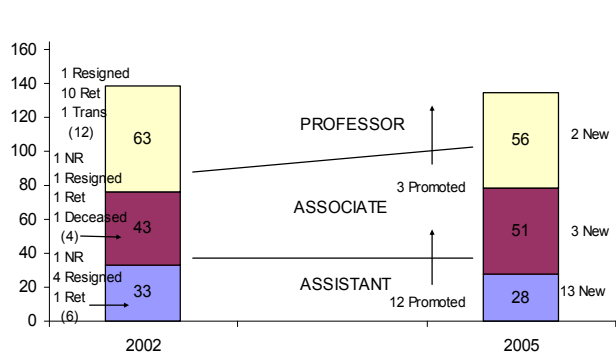


Figure 2: Male Faculty Flux 2002-2005

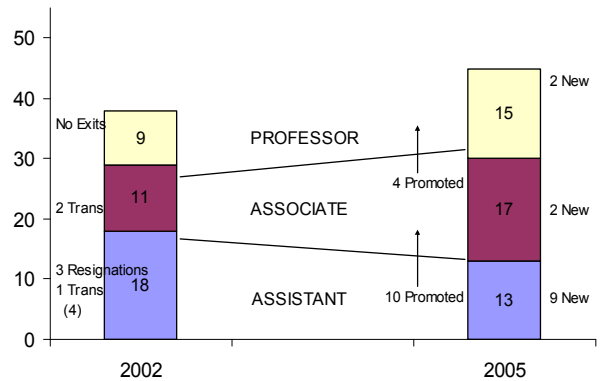


Figure 3: Female Faculty Flux 2002-2005

Barriers to Advancement in Science and Engineering

Feelings of isolation in male dominated fields, tough choices about tenure track or non-tenure track directions, and challenges of balancing career and family goals are some of the experiences commonly reported by women in academia in S&E fields.¹ To assess climate factors and advancement barriers specific to women S&E faculty at Boise State University, the College of Engineering held “factor finding” sessions in 2004-05. Invitations were sent to 30 representative women faculty from the departments in Table 1. There were 19 (63 percent) responses. Participants included three non-tenure track teaching or research faculty, five assistant professors, six associate professors and five full professors. Before engaging in verbal discussion, participants were asked three open-ended questions: (1) List three or more factors that have contributed to your career success or job satisfaction at Boise State University; (2) List three or more factors that have been obstacles or barriers to your career success or job satisfaction at Boise State University; (3) What changes could you suggest at Boise State University that would aid in the recruitment, retention and promotion of women faculty? The most often cited factors contributing to faculty success included a supportive chair, active research collaborations and supportive colleagues. Some suggestions for change were not gender specific and were identical to feedback received by the provost at campus-wide strategic planning sessions held spring 2005 involving more than 600 faculty and staff on campus. Barriers and suggestions for change more relevant to women identified in the factor finding sessions are grouped thematically and ranked in order of frequency mentioned, see Table 2.

Unlike faculty perceptions at some other universities where junior faculty perceived fewer challenges than senior faculty, including MIT⁸ and Utah State⁹, the five junior tenure track faculty at Boise State University perceived similar challenges as the tenured women faculty. The top three issues listed in Table 2 among all women faculty are remarkably intertwined. As we undergo the transition to a research university, it is not surprising that so many faculty are struggling with the balance among teaching, research and service. However, women faculty cited several gender specific considerations such as research productivity during a one-year hiatus from the tenure clock due to the birth of a child. Until recently, tenure clock stoppage has been granted only at the discretion of the individual department without university-level policy

consistency; the new policy was in fact instigated by a woman faculty in science. Many women faculty are leaders in research; yet, other women faculty were originally hired to contribute excellence in the teaching arena. Some of these faculty express that they feel stressed or left behind due to the new emphasis on research.

Obstacles, Barriers, Suggestions for Change	Rank
Workload balance issues including lack of schedule flexibility and lack of flexibility or clear expectations in balancing teaching, research and service	1
Inadequate family-friendly policies such as family leave or tenure clock extension	2
Administration climate issues such as unsupportive, insensitive or discriminatory actions by senior faculty and people in leadership	3
Need for specific recruitment plans for women candidates and dual career couples	4
Cultural perceptions of “traditional” gender roles/lack of respect from colleagues, students and parents	5
Difficulty in finding mentors	5
Concerns about roles of women Ph.D.s in non-tenure track positions	6
Salary issues including inequity between departments and deviation from national rates	6

Table 2: Results from Factor Finding Sessions

Additional themes which generated significant discussion were dual career couples, the lack of transition opportunities between teaching or research tracks and tenure track, and negative cultural biases regarding women in roles of authority. Cultural bias issues are unsurprising considering that Idaho ranks 51st in the United States (with D.C. included as a separate entity) in the percentage of women in leadership and management positions.¹⁰ This low ranking makes our cultural transformation even more vital as a leadership model for the entire state.

Female-Friendly Recruitment

The College of Arts & Sciences reports that some of the same factors identified as obstacles to current faculty in Table 2 have recently affected recruitment efforts of women scientists. Table 3 summarizes recruitment results of women in biology, chemistry, geosciences, mathematics and physics departments in the past two years. Note the prevalence of decisions based on spousal employment.

Unsuccessful Female Faculty Recruitments	Female Research and Tenure Track Science Faculty Hires
Faculty couple unable to balance dual career needs with personal issues	Male spouse hired into tenure track position; female spouse elected (without mentoring) non-tenure track position for family reasons
Salary incentive unavailable for faculty who obtain major research grants	First female geosciences professor hired; first time a female was included on search committee
Male spouse in dual career couple not a finalist candidate for position	

Table 3: Results of Recent Efforts to Recruit Women Faculty in Science

Since fall of 2000, the College of Engineering has made a concerted effort to recruit and retain women faculty and administrators at all levels. Significant efforts have successfully created diverse applicant pools. Recruitment efforts include the following components:

- Open-ended job advertisements, where possible, wherein specific areas of interest are not delineated. Advertisements highlight quality of life as well as technical opportunities.
- Active seeking of female and minority applicants, through a combination of web searching and networking at meetings and direct contact via email and telephone. (Sometimes people just want to be invited.)
- During the interview, ensuring that female applicants meet current female administrators, faculty, staff and students and see that female participation is visible and valued at all levels.
- Every search committee includes a female faculty member or is chaired by a female faculty member. Search committees present visiting candidates with the strong message that the college is an inclusive academic environment. Entrepreneurial spirit, openness to change and committed leadership all contribute to this environment.
- During negotiations, current female faculty and administrators are enlisted to personally contact potential hires to give testimonials of how their own choice to come to Boise State University was right for them.
- Every effort is made to promote opportunities for a dual career partner, whether an academic or not, through personal and professional contacts.

These efforts initiated by leadership and embraced by faculty resulted in six new female faculty (one of color) and six new male faculty (two of color) between 2000 and June 2005. Moreover, female leaders in the college are evident at all levels – research center, department, and college administration – and at all academic ranks. Presently more than 40 percent of the college leadership is female. In 2000, none of the leaders in the college were women.

In order to institutionalize this recent success, deliberate strategies are being implemented to recruit women and other underrepresented faculty university-wide. Examples are:

- Appointment of a female minority faculty member as Special Assistant to the Provost to help enhance recruitment efforts of underrepresented groups.
- A new professional employee in the office of affirmative action now verifies that extensive recruitment efforts of women and minorities occur for every advertised position.
- A campus climate survey was conducted to obtain information on obstacles, barriers and suggestions for change beyond science and engineering. Data are being analyzed and will be made available at the unit level to assist in focused efforts to improve climate and aid recruitment and retention.
- Plans are also in place to provide a faculty recruitment toolkit on the university website and to evaluate all job advertisements and assess the diversity of the faculty hired.
- New distinguished professorships for outstanding faculty provide an incentive to attract and retain top faculty; the inaugural award went to a woman in science.

Additionally, several new university policies speak to the transition of Boise State University to a more family friendly and gender balanced atmosphere, including: the Dual Career Policy; Extension of Tenure Probationary Period Policy; Family Sick Leave Policy; Domestic Partners Policy; and Shared Leave Policy. In addition, the university covers the COBRA health insurance

costs for faculty and select staff for the first 90 days of employment; has an on-site child care center; offers flexible and dependent care pre-tax accounts; and supports flexible work schedules and job sharing. Other policies under consideration in the near future address shared or ½ time tenure track positions; search committee balance; expansion of the Non-Discrimination Policy to include gender identity/expression; expansion of instructor level hires; and a review of chair duties and the chair selection process.

The success of these policies is clearly evident when looking at the newest department in the College of Engineering. In 2004 the college created the Department of Materials Science and Engineering (MSE), which now offers three degrees, Bachelor of Science, Master of Science and Master of Engineering. The department was initiated with 1.5 faculty members (one holds a joint appointment) and has hired 4.5 new faculty members in the last two years. Females hold more than 50 percent of the tenure/tenure track appointments in the department. With so many women faculty role models in MSE, 41 percent of the department's graduate students are women – the highest among engineering departments in the college.

As a case in point we will address in detail only the new Dual Career Policy. Dual career couples have brought strength and diversity to the university as it grows rapidly. In the College of Engineering alone, over half the faculty women have faculty spouses in science or engineering. In 2004 the college hired a woman full professor. This hire was made possible through the extraordinary efforts of the Dean of Engineering who prevailed upon the President and the Dean of Arts & Sciences to hire her highly qualified spouse into a tenure track position in biology. This, and other dual career hires in the last several years, spurred the development of a formal faculty dual career policy. A recent study¹¹ reveals four key factors that guided us in the creation of the new policy:

- Visibility – attention is being paid to communicating that dual hiring is a routine practice, which defuses the stigma sometimes associated with the second hire. The dual career policy is being mentioned in job announcements and on the website, to put candidates more at ease about raising the issue of opportunities for a spouse.
- Oversight – there is a need for negotiation across departments and colleges, for facilitation, coordination and communication about dual hires, including both on- and off-campus.
- Language – words and phrases such as “accommodation,” “two-body problem,” and “trailing spouse” are not utilized. Rather the more neutral “dual career” policy is used to communicate a positive climate.
- Dual Hire Fund – the critical element of a second hire of a qualified, dual career couple lies in the financing of the second position. For the first three years of the position, 1/3 of the position will be funded through the provost's office, 1/3 through the dean's office of the initial hire, and 1/3 through the department of the partner hire. After the third year, the position is assumed by an appropriated faculty line.

Conclusions

The College of Engineering has had good success in recruiting women faculty at all academic ranks and levels of administration. A clear understanding of the current environment in science and engineering and identification of barriers assists in identifying major opportunities for

effective change in policies, procedures and perceptions. Engineering continues to work closely with Arts & Sciences faculty to share best practices; and the university is using the college's success in female-friendly recruitment as a proven foundation to achieve faculty diversity across campus.

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