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## **Retention of Female Faculty Members**

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### **Introduction**

Engineering programs have struggled for years to recruit female undergraduate and graduate students (1). A similar challenge at most universities is recruiting female faculty members from the limited pool of candidates in various fields, particularly engineering and related disciplines. Many universities are becoming aware of an additional issue, the retention of these female faculty members. A recent study on the status of women faculty in science at the Massachusetts Institute of Technology brought national attention to the challenges facing female faculty (2).

In recent years a number of faculty members at the University of Missouri-Rolla (UMR) have become concerned about the status of women faculty at the university. The university made and continues to make significant efforts to recruit females to join the faculty. However, it was noticed that about half of the women hired did not stay at the university. A concerned group of female faculty united to evaluate the retention of female faculty, explore the campus climate for female faculty, and to attempt to improve the campus climate. This paper presents the results to date of this project.

The University of Missouri-Rolla is a small, Midwestern university with a strong emphasis in engineering. Nearly 85 percent of the student body majors in engineering or a closely related field. The enrollment of the school is approximately 5,000 students with over 75 percent male. The average ACT score for entering freshmen is very high at nearly 28. As of 1999, the university had a total of 299 tenured and tenure-track faculty members with 26 (8.7 %) female (3). Rolla is a small rural community in central Missouri, one hundred miles from St. Louis. Local employment opportunities outside of the university for professionals are limited.

### **Statistics Concerning Female Faculty at UMR**

An analysis was performed of the university's recruitment of female faculty since 1985. UMR has hired 32 women in tenured or tenure-track positions during this 15-year period. The women are in a wide variety of academic disciplines with the vast majority being new PhDs beginning their career in academia. The many, approximately two thirds,

are in engineering or science disciplines. The analysis resulted in some interesting findings.

- Of the 32 women hired, 14 (44%) women have left the university and three (9%) others are in an unusual status, such as extended leave.
- For 19 of the 32 women enough time has passed for them to achieve tenure. Ten (53%) were promoted from assistant professor with tenure. One assistant professor (5%) was denied promotion and tenure. Eight assistant professors (42%) did not apply for tenure.
- Of the nine who did not receive tenure, five (56%) left academia to work in industry or to be a homemaker, three (33%) went to "equal or lesser academic positions" and one (11%) went to a "better academic position".
- Of the ten women tenured, one (10%) became a department chair at another university, one (10%) has become a department chair and one (10%) is an interim chair at UMR. One (10%) woman holds a 50 percent appointment as director of a university research center. No female faculty members hold an administrative position above chair at the university.
- Of the 33 total female faculty members, four women (12%) have given birth as faculty members and stayed at the university and two women (6%) have left the university while pregnant, 13 of the total 33 women (39%) have children.
- Of the 18 women still at the university seven (39%) are or have been in a commuter relationship with their spouse or partner, three (17%) have spouses employed at the university in tenure-tenure track faculty positions, two (11%) have spouses periodically employed as adjunct faculty, three (17%) have spouses employed locally, and three (17%) are not in a long term relationship.
- Of the 13 women hired in the last six years, four (30%) are leaving or have left the university, one (8%) hired as an associate has been promoted to full and tenure, one (8%) was hired as an endowed chair (the only female endowed chair at the university), and seven (54%) are progressing towards tenure as assistant professors.

### **Campus Climate Survey**

In response to this turnover, a group of female faculty members approached the three academic deans to request funding to hire a consultant to conduct a survey of and a workshop for the female faculty on campus. Eighteen female faculty members completed an anonymous survey about the campus climate, departmental support, and various other issues (4). This represents a 64 percent response rate. The women were also able to attend one-on-one sessions with the workshop presenter. These sessions included reviewing the individual's resume and providing specific suggestions, as well as collecting information about the issues facing female faculty members.

Participants in the survey included two lecturers, seven assistant professors, seven associate professors, and two full professors. Participants were asked to indicate the extent to which the environment had facilitated or enhanced her career and research productivity. Results included:

- The women felt knowledgeable of the formal tenure and promotion policies, but were uncertain about the informal policies.
- Most campus climate factors received positive evaluation with the exception of promotion of women to full professor or administrative positions, support of parental issues, and faculty mentoring.
- When questioned about their nationwide network, women responded positively or very positively about receiving information and guidance from colleagues at other universities.
- When questioned about support from department or campus colleagues results were mixed. Friendship with others on campus and receiving information about the job were rated highly. Receiving information about specialization and norms from colleagues on campus were rated lower. Help in establishing faculty member's reputation was also rated lower.
- Activities that were judged by many of the females to have facilitated their careers included support from national colleagues and the university's office of research.
- Activities that were judged by many to have impeded their careers included lack of support from the department, area of specialization, and family issues (dual career, etc.).
- Knowledge of peer's salaries and teaching loads were rated average, but knowledge of negotiable items was rated low.
- Overall satisfaction was slightly above average and overall success was rated between average and very successful.

### **Career Development Workshop**

Twenty-six women attended the daylong workshop emphasizing career development for female faculty members. Topics included time management, goal setting, negotiation, tenure, and succeeding in academia. Activities included presentations, breakout sessions, and self-reflection. Feedback from the workshop was overwhelmingly positive. Junior faculty freely asked senior faculty for advice on promotion/tenure and sought insight into informal campus policies. On the evaluation form, one senior faculty member commented that she appreciated the "opportunity to exchange knowledge with colleagues." Several assistant professors expressed concerns about the "mysterious" tenure process. They sought information and guidance in the one-on-one session and in the group discussions. One woman shared that the benefit of the workshop was "getting reassurance about progress" and another felt it was "helping to find focus." One workshop participant noted that the university had a significant investment in her as a faculty member and provides a generous travel budget for her to attend technical conferences. However, no one had encouraged her to consider her professional development.

### **Results and Recommendations**

A post workshop report was written based on the survey results and the comments made during the workshop. The report was submitted to the university's chancellor and academic deans. Copies were made available to interested faculty members.

Recommendations included developing a mentoring program for junior faculty, a performance and salary review aimed at monitoring equity issues, a campus-wide maternity leave policy for faculty members, and establishing a on-campus childcare facility. As a result of this report and follow-on activities by some of the female faculty on campus, a statistical salary evaluation was performed. Factors including gender and race were considered. No significant inequities were found. The highest level of the administration has pledged to periodically repeat the analysis. A taskforce has been formed by the chancellor to develop a parental leave policy for faculty. They hope to develop a formal policy to replace the current arrangement where the faculty member negotiates her or his individual situation. The taskforce will also address other issues including faculty mentoring and campus climate issues.

Faculty retention is a complex issue. Many factors contribute to the turnover of female faculty. Now that the national spotlight has shown on this issue, the time is ideal to create change. Policies such as spousal hiring and parental leave can be established. Programs to encourage mentoring and career development can be started. Factors that contribute to chilly campus climates should be eliminated. Such improvements will benefit all faculty members, female and male. Our universities have made too great an investment to allow the current trend in retention to continue. The losses in self-esteem and careers potential are too great to be ignored.

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## **Biographical Information**

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Susan Murray is an associate professor of Engineering Management Department and director of the Lemay Center for Composites Technology at the University of Missouri-Rolla. Dr. Murray received a B.S. and Ph.D. in industrial engineering from Texas A&M University and has a M.S. in industrial engineering from the University of Texas at Arlington. She is a registered professional engineer in Texas and her research areas include of work design, manufacturing, engineering education, and engineering management. She has served as the chair of the Engineering Management Division of ASEE and is on the board of directors of the Women in Engineering Division. Dr. Murray has received numerous teaching awards.

### **MARIESA CROW**

Mariesa Crow is a Professor of Electrical and Computer Engineering at the University of Missouri-Rolla. She received her BSE in Electrical Engineering from the University of Michigan and her Ph.D. in Electrical Engineering from the University of Illinois – Urbana/Champaign in 1989. Her area of professional interest

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**SUZANNA ROSE**

Suzanna Rose, Ph.D., is Director of Women's Studies and Professor of Psychology at Florida International University. Dr. Rose specializes in career consulting for women faculty and has done research on the career paths of women in academe. She has edited two books, Career Guide for Women Scholars and Women's Careers: Pathways and Pitfalls. Her most recent work in this area was published in Arming Athena: Career Strategies for Academic Women and focused on salary negotiation for women. She may be contacted at [srose@fiu.edu](mailto:srose@fiu.edu).