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**A "Grass Roots" Mentoring Model to Create Change  
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**Abstract**

For more than fifteen years the women faculty in the College of Engineering at Texas A&M University have built a community through social activities, seminars, and outreach programs that have served well as a mentoring mechanism between junior and senior faculty and peers. What started as social activities during lunch or after work has evolved into the formation of the Women Engineering Faculty Interest Group (WEFIG), a university recognized organization that serves in an advisory capacity to the Dean of the College. WEFIG also has a formal relationship with the Women's Faculty Network (WFN), a university-wide women's group that sponsors events in support of women faculty across the campus. This grassroots approach to a mentoring group was initiated by one of the early women administrators in the college who would share insights on the administration of the college and university, thereby fostering a sense of inclusion in the community that might have otherwise seemed unwelcoming. This administrator's staff would periodically organize gatherings where attendance was voluntary and meant to be a time to be with other professional women in a relaxed atmosphere. It was an effective way to introduce new engineering female faculty to female engineering faculty working in separate buildings, programs, departments, many of whom one might not ever encounter otherwise.

With a recent change in administration at both the university and college levels and new priorities being set, WEFIG has become more formalized in structure. As diversification of the faculty has become increasingly important, WEFIG has been called upon by the Dean to assist in meeting this goal. As a first step, WEFIG has initiated, with support from the Dean's office, an expanded version of the MIT self-study (MIT, 1999) to include issues of gender and ethnicity in assessing the college climate for recruitment and retention of new faculty. This study is expected to expose weaknesses as well as strengths in meeting the diversification goals and providing the supportive environment necessary for faculty retention, particularly for women and minorities. In this paper a model will be presented that other faculty/administrators can implement to both mentor faculty and create change at their institutions.

**Introduction**

From a handful to a roomful, the faculty women in the College of Engineering at Texas A&M University are increasing in number and visibility. TAMU officially allowed women to attend the formerly male only college in the 1960s. The first woman joined the TAMU faculty also in the 1960s. In 1986 there were but four women in the College and today there are 2323 tenured or tenure-track women faculty. Although most of these women are tenure-track assistant professors, several have advanced to become full-professors and a few advance into administrative positions. Being such a minority has its

challenges, one of which can be isolation. However, these women have developed a special network that provides support and friendship that many of the male faculty wish they had!

As at most institutions of higher education, TAMU is working to diversify its student body. Nationally, the face of engineering is changing and at TAMU as well. Between 1991 and 2001, enrollment of women in engineering at the B.S. level increased 5.1%. Graduate school enrollment of women increased 4.7% for M.S. and 5% for PhDs. However, in B.S. and Ph.D. degrees awarded to women there was no significant increase indicating a problem with the retention of undergraduate women in engineering. The dramatic increases in the M.S. degrees awarded that occurred during this time (up 10.8%) was greater than seen in the sciences (9.4%), but may be attributed largely to successful recruiting of women from countries other than the U.S.. Some departments have increased the number of women students while others have fewer today than in 1991. Efforts to recruit and mentor young women comes through several programs sponsored by organizations such as the Society of Women Engineers (SWE) and the Women in Engineering, Science and Technology (WEST) for which the women faculty in the college frequently participate in various events. There is a long list of special programs in which the College participates which can be accessed through the TAMU website (<http://eapo.tamu.edu/>). Efforts to diversify the engineering student population are intensifying at the present time.

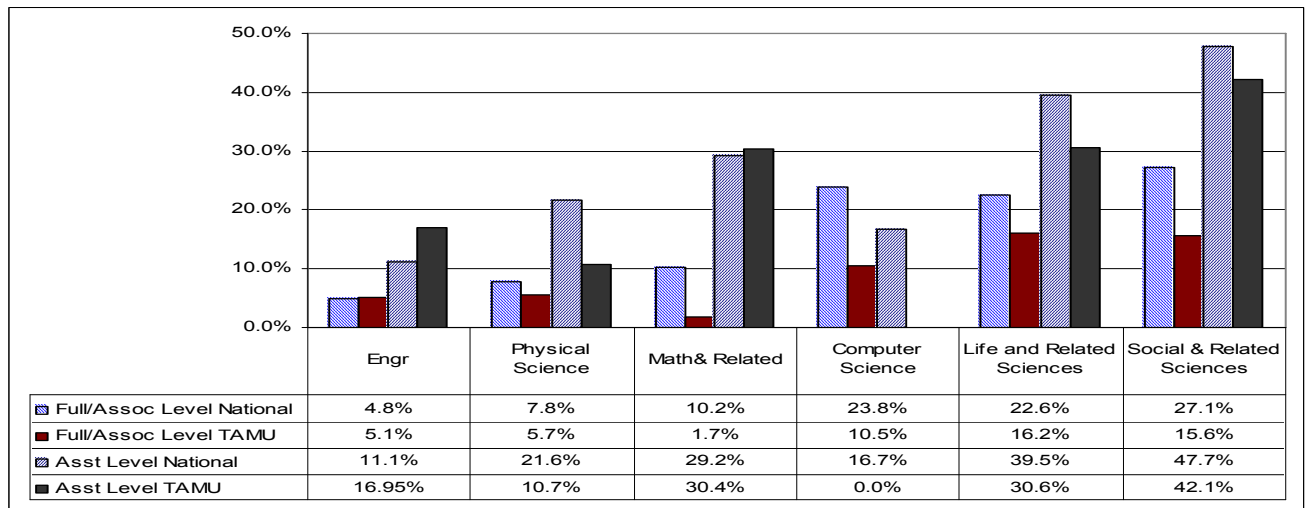


Figure 1 Proportion of Faculty Members who are Women by Field: National Data are from NSF: Science and Engineering Indicators, 2002 (data for 1999) and TAMU Data are 2001 information

Relative to the national averages, TAMU's College of Engineering is just above the national average for the percent of women faculty at the Full/Associate level, and substantially higher for the Assistant Professor level (Figure 1). At TAMU the majority of the women faculty are less than 45 years old which is consistent with national trends (NRC, 1999). In 1991 there were seven women faculty in the College found in five out of ten departments. That number grew to 19 in 2001 with women in all but two of the engineering departments. Today at 23, most women are found in Civil Engineering (5), followed by Biological and Agricultural Engineering (4), and Computer Science (3). In

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2003, the first woman department head was hired by Computer Science and our Associate Dean became the Dean of Faculties. A few more than half are married and ten have children almost all of whom were born while their moms were professors. The increase in numbers of women brings a richness in life experiences from which others can benefit through casual conversation or pointed discussions. The trick is to provide the opportunities for these conversations to take place.

A special camaraderie has developed among the women engineering faculty that has been fostered by informal mentoring. Efforts were made to bring the women together periodically in voluntary gatherings sponsored by one of the women administrators. There was no agenda or regularity to the gatherings. Most of the women participated in outreach programs to high school students, teachers, undergraduates, and others during summer programs and other activities. Care was taken not to burden any one individual with this volunteerism. In 2002, the women formed a university recognized organization, Women Engineers Faculty Interest Group (WEFIG) so that they could request to be included in university and college activities such as the interviewing of candidates for the Dean of the College. This group works to balance new opportunities to serve the College and University with maintaining the informal opportunities that have been so effective in providing a support mechanism for women faculty.

### **The Formative Years**

It started with just a handful of women getting together periodically in an informal setting. These gatherings were initiated by one of two women in administration, an Associate Dean in the College of Engineering. As an administrator she was responsible for “special programs” at first which included those initiatives to recruit people of color and women into engineering. It was natural to include the women faculty in the efforts to recruit women into engineering, although care was taken not to over-tax these few who were already heavily loaded as they were working to get tenure and all that entails. Faculty are asked to participate, but the women have always been disproportionately active in these outreach efforts relative to their male colleagues. Sharing the mentoring role was another element of commonality that connects them whatever their motivations for participating.

As the number of women faculty grew and they were facing the challenges of the tenure and promotion process, they brought questions to the gatherings. Again, our Assistant Dean played a key role in providing guidance and insight into the administration, politics of the faculty, and issues at the university level. It seemed she would share with us an inside glance into the College’s administration and reasoning behind decisions that had been left unexplained. She was able to make us feel more included and aware than would have otherwise been possible. Some of the lunches were convened to discuss specific issues such as outreach opportunities and “what it takes to get tenure.” These were opportunities to ask questions. These were also opportunities to share stories.

Many of the women were and are the only one of their gender in their departments. This can result in isolation, particularly for single women who may not get asked to join a group for lunch because of social concerns. We have lost some women from engineering at TAMU because of their work climate, others were not successful in getting tenure,

among other personal and professional reasons for leaving. It is not clear if the rate of departure for women faculty is any different from their male counterparts who may share some of the same reasons for leaving. Changes have been made to accommodate women having children, faculty who need to commute and need flex schedules, and other modifications have been made to accommodate faculty needs. And thankfully the reluctance to ask the women along for lunch and other activities is abating of late.

The informal gatherings made it possible to ask the hard questions about the climate in the college. How was it in other departments? Did people mistake you for the secretary too? How come he had fewer publications and students than I did and he was unanimously approved for tenure by the departmental committee? The gatherings were an opportunity for the women to voice their fears and frustrations in a safe environment with sympathetic, even empathetic, colleagues. It was a way to check one's perceptions of reality which can be skewed when working long hours to teach classes, advise students, write grant proposals and papers, and serve on committees to name a few of the demands of faculty time. Having a community of female faculty with whom a genuine concern for each other's professional and personal achievements and failures was felt, was comforting particularly for those who often felt isolated and invisible among their department colleagues. Probably because of these gatherings, friendships have grown that would have not occurred because people's paths may not have otherwise crossed. Over the years we have celebrated together, commiserated together, and laughed a lot.

### **Getting Organized**

In Fall 2002, the TAMU NSF Gender Equity Project sponsored a career planning program conducted by an outside consultant to assist female faculty in developing successful career strategies. Twenty female engineering and agriculture faculty, consisting of assistant, associate professor, and a few administrators, participated in the program. The program included analysis of participants' curriculum vitas, individual interviews, one-day workshop on career development, and a survey to assess institutional climate. The participants found the individual assessment and counseling to be extremely useful; many commented that it allowed them to focus on their careers over a 20 year horizon. Participants felt that they lose sign of the big picture due to their immersion in the daily demands. Further, the one-day workshop provided an opportunity for the junior faculty to discuss their individual circumstances/situations with senior faculty in their college in a friendly and confidential environment. Also they were able to hear some 'war' stories from some of the first female faculty in their colleges.

During the 2002-2003 academic year, a dialogue series on with administrators and "some minority faculty" was led by the TAMU NSF Gender Equity Project. Articles focusing on various topics were distributed to participants (faculty and administrations) prior to the event and were the center of discussion. Several of the minority faculty "were relieved to have the opportunity to" articulate their perspectives in this forum because some had encountered situations in which their perspectives had not been "considered" by department and college administrators. They were given an opportunity to communicate to people in positions of authority some of the impediments they encountered as faculty. Some administrators commented that they learned new approaches to mentor and

developed an awareness of the problems that their junior minority faculty encountered based on the readings and general dialogue. This was an effective means of developing a dialogue to convey some of the difficulties that the minority faculty encounter.

The move to become more organized was precipitated by a combination of events. To some extent we lost the one who would bring us together periodically when she moved into the Dean of Faculties office. It was up to us to continue our gatherings. This was facilitated through the Engineering Academic Programs Office which runs many of the outreach programs in which most of us participate. Another pivotal event was a change in administration in the College which can be an unsettling time as positions are vacated and filled by the incoming Dean. During this time of change was an opportunity to take our gatherings to another level and become recognized as a group with a role in the College. Special interest groups are common on college campuses. They provide an opportunity for like minds to come together. The Women's Faculty Network (WFN) was formed more than 15 years ago. With representation on its Board from all Colleges, WFN sponsors many events, annually hosts a luncheon with the President, and generally acts as the voice of women faculty on campus. With the changes in the College's administration, we felt it was an opportunity to formalize ourselves and form a university recognized group. The Women Engineering Faculty Interest Group (WEFIG) became a university recognized group in 2001. As such, we could request to be included in activities such as interviews with candidates for the Dean of the College. WEFIG met with all candidates and filed a report on their collective opinions with the Search Committee. The WEFIG steering committee consists of elected members and one at-large member who dually serves on the WFN board. This provides a connection with the university.

The WEFIG mission statement is summarized in the following:

- To facilitate undergraduate mentoring in collaboration with SWE
- To facilitate graduate mentoring in collaboration with WESTWISE
- To be of service to the College/Department by contributing as needed on committees and other venues and to be part of the solutions for COE
- To connect to the University through WFN

WEFIG has developed stronger ties with WEST and SWE to foster mentoring programs for the graduate and undergraduate students. Ever mindful of the tendency to become overwhelmed by volunteerism, WEFIG works to first fulfill the needs of the women faculty and then provide service to the students and administration.

### **The Future**

WEFIG was formed so that the women faculty would have more of a voice in the College. The Dean has been supportive of our request to conduct a self-study to evaluate 'where we are and what we need' with concerns of equity a driving force. However, self-studies must be used carefully. They may indeed identify problems that can be fixed with relative ease, such as salary disparities or laboratory space allocation bias. Such

problems may be symptoms of deeper issues such as climate which are not readily changed and more difficult to quantify.

The formation of WEFIG was not done with unanimous agreement from all the women faculty in engineering. Some felt such a group was unnecessary and others feared the loss of the camaraderie that has long been our strength. We feel we can do both, but we must take care not to get consumed by volunteerism and remember that we first serve ourselves, the women in the College of Engineering.

Plans for the future include mentoring ourselves and the undergraduate and graduate students, providing the Dean with input when requested, and to conduct a study of the women faculty in engineering. The danger in any self study is that it may identify problems that can be fixed. And once fixed then all should be well, but may not be. Barriers to success can be hidden and subtle. The climate in the college must be conducive to the success of the faculty. This will be the emphasis in a study which is currently being planned. In all that we do, we work to be a positive force in effecting change that makes the College and University a better place for ourselves and others.

### **Conclusions**

The mentoring program for women faculty in the college of engineering at Texas A&M University is truly a 'grass roots' effort, initiated by an influential woman administrator who opened the doors to the College's internal workings for other women to experience what otherwise might not otherwise accessible. What started as an informal series of gatherings has matured into a university recognized group. The collegiality developed early on is continually nurtured to provide to new faculty the welcoming environment those that came before have developed. Many changes have occurred over the years to improve conditions for women faculty, but more change is needed. WEFIG is a means of effecting change while supporting both personally and professionally their own.

### **Biographical Information**

ROBIN AUTENRIETH, Ph.D. is a Professor of Civil Engineering and serves as a Co-PI on the NSF Research Experiences for Teachers and is the contact person for the Women Engineering Faculty Interest Group. Her research interests include biological processes: water treatment, biodegradation and bioremediation of selected xenobiotic compounds; bioavailability of contaminants in aqueous and soil environments; and environmental risk assessment.

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