

WOMEN FACULTY IN THE STRUCTURAL ENGINEERING PROFESSIONS: ACADEMIC CLIMATE

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ABSTRACT

A workshop and conference sponsored by the National Science Foundation on women faculty in the structural engineering professions was held in the spring of 1993. The issues discussed were those that affect women faculty and students in structural engineering as well as non-gender related issues for professional growth in an academic environment. This paper will summarize the discussions pertaining to the issues of gender bias, recruitment and retainment of women engineering faculty and student-teacher relationships.

INTRODUCTION

In the past decade, efforts and policies have tried to address the issues of race and gender inequity in the science and engineering professions. While these issues are broad, few have focused on civil engineering, especially the structure-related disciplines. The enrollment of female students in these disciplines remains low. Consequently, the number of women entering the profession is small. There is even fewer in academic positions.

Women are under represented in science and engineering disciplines. There are reasons why this situation needs to be addressed. First, the equal opportunity and affirmative action law requires equitable treatment to both men and women in engineering for education, recruitment and retention. Second, it is important to have women faculty to serve as role models for engineering students, both men and women. Third, women represent half of the world's population. The impact of educating women in science and engineering on the welfare of the society, both social and economical, is enormous ¹.

In an effort to improve the current academic climate and to demonstrate its commitment to increase the number of women involved in structural engineering

 WOMEN IN ENGINEERING CONFERENCE: EFFECTING THE CLIMATE

1994 WEPAN National Conference

education, the National Science Foundation, Division of Civil and Mechanical and Systems, sponsored the first women faculty in structural engineering conference and workshop entitled, "Facing Issues: Women Faculty in the Structural Engineering Professions", in Utah, April 1993.

Thirty women attended the Conference. Among them 22 were women faculty from the United States and Canada, four women from the industry, one NSF representative and 3 graduate students. The twenty two faculty represented 51% (of the total 43) of the women in structures-related disciplines of civil engineering.

The purpose of the Conference was to identify and discuss issues affecting women faculty and students in structural engineering as well as non-gender related issues for professional development of an academic career. These issues are: gender bias, time and stress management, professional networks, research, teaching, communication, recruitment and retention, single parent and two career families.

In this paper, only those issues relating to gender bias and recruitment and retention are presented. Recommended actions to women faculty, students, university administrators, colleagues and supervisors to minimize and/or eliminate the inequitable treatments between male and female faculty in structural engineering are also presented. Other issues listed above are not included in this paper but can be founded in the Conference report ².

ISSUES FACED BY WOMEN ENGINEERING FACULTY

A young faculty member oftentimes faces problems, dilemmas, difficulties, frustrations and many other unexpected and unpleasant professionally related issues. Some of them can be resolved over time as the individual gains more experience in his/her role as teacher. Some can be resolved with the help or advice of senior colleagues or mentors. The female faculty member has to burden additionally with gender related issues. Time and mentors may not resolve these problems. The reason gender related issues exist is culture. The experience that the Conference participants went through are similar to those experienced by other under represented groups. However, this does not imply that the gender issues in structural engineering profession should not be addressed and actions should not be taken to correct the situation. The frequent issues that a women faculty face are presented here.

Gender Bias

A women faculty is not treated in the same way professionally as her colleagues or peers of equal rank and experience. Examples of professional inequality include: respect by colleagues and students; teaching assignments,

committee service, willingness to accept the women faculty based on merit rather than personal or family condition (single parent or two career families).

Lack of Professionalism Shown Towards Women Faculty

Resentment is frequently shown on a woman faculty's achievements. Remarks such as gender preference (for example, "you got the award because you are a woman") instead of merit are made if a woman faculty is successful in securing a position, grant, award, etc. This negative attitude on women faculty also affects the students' respect women faculty and adversely affects the women students' decision to pursue engineering.

Isolation

A woman faculty in structural engineering is often the only female faculty in that discipline. In most cases, she is the only women in the department and some instances, in the college of engineering. As a result, the woman faculty feels isolated. She often has difficult fitting in the closely knitted "good old boys" network. She may also be left out in many discussions and interactions with her male colleagues. In addition, women faculty also feel isolated by the faculty spouses because of her unusual role in the department.

Visibility

Since there are so few women in engineering, especially structures, they are usually more visible within a department, in the college and in the conferences. This kind of visibility may not be beneficial to the faculty member because she is likely to be under continuous scrutiny, an added pressure that her male colleagues do not encounter.

Patronization

Compliments given by male faculty members to their female colleague may or may not be sincere. The women faculty continuously interpret comments, whether they are compliments or otherwise, from her colleagues.

RECOMMENDATIONS

How are the issues listed above to be resolved so that more women will choose an academic position as their career. Simple whining, hoping and wishing are not sufficient. Emphasizing recruitment without retainment will not change the current climate. Actions targeted at each of the above issues are necessary. Followings are the actions recommended by the Conference participants for women

faculty, chairs, administrators, colleagues, peers and research sponsors.

Responsibilities of the Women Faculty

Women faculty need to play a more aggressive and active role in recruiting female colleagues. For example, when one serves on a committee, she should re-examine the female applicants more carefully to ensure that they are not overlooked. Women faculty members need to increase their interactions among themselves to enrich their social and professional growth. They need to be more conscientious in being role models for the women engineering students. The women faculty need to be more active in serving as mentors to students, as well as their junior women colleagues. The junior women faculty and students need to be more aggressive in identifying mentors (male or female) who have a sincere interest in their professional growth.

Responsibilities of Colleagues and Supervisors of Women Faculty

Women should be actively included in all decisions involving general faculty matters and issues relating to their subdiscipline. They must always be treated professionally and offered equal opportunities. Chairs must be supportive of women every step of the way. When the women faculty are undermined by the faculty, their withdrawal is certain. Compensation and perks should be based on merits only and be independent of gender, race and family condition.

Responsibilities of University Administrators

University administrators must actively encourage the hiring of women engineering faculty. While efforts in recruiting women faculty and students have increased over the years, little or no effort has been made to retain them. Suggestions for retainment includes:

1. Gender workshops for all personnel.
2. Gender related issue committee to address and resolve gender related issues and to advise the department chairs and deans on such issues.
3. Support groups to relieve feelings of isolation.
4. Assistance in recruiting and retaining women students and faculty, publicity, fund raising, etc.
5. Stopping the tenure clock for family leaving such as child bearing.
6. Campus safety when women need to work late because of research or teaching schedule.
7. Establishing an effective mentorship program to foster the individual's professional growth. And
8. Tenure evaluations that reflect the greater service burden, the harsher evaluations by students³ and the positive role models for students.

Responsibilities of Research Sponsors

Unfortunately, the academic related field is highly political and competitive, and all faculty members feel the pressures, especially the younger ones. However, women have an extra burden when competing for research funds. They run a greater risk of having their proposals and papers reviewed by persons in their profession who may have prejudices against women or worse, persons of power in funding agencies may be biased and unable to recognize a woman's research capabilities. Care must also be taken in choosing proposal reviewers. It is critical to an equitable review of all proposals that the reviewers include persons, both men and women, who will not harshly and wrongly show prejudice.

CONCLUSION

In the conference and workshop sponsored by the National Science Foundation, issues that have direct influence on the current academic climate for women engineering faculty were identified and discussed. Recommended actions were suggested for women faculty, department chairs, university administrators, colleagues, peers and research sponsors. The issues and recommendations are summarized in this paper. A more comprehensive discussion and non-gender related issues can also be found in the Conference report ².

It is evidenced that women engineering faculty has a vital and significant role in the profession and the society. It is also morally and economically sensible to have women engineering faculty. However, the current academic climate will not be able to achieve an equitable number of women engineering faculty. Worse yet, it may have an adverse effect on the existing ones. Unless all the parties involved are sincere about the concerns that the women engineering faculty are facing and make extra efforts to improve or correct the current academic climate, the welfare of our society, both social and economical, will be hampered. Our ability to compete globally will also be affected.

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