

WOMEN IN ENGINEERING PROGRAM ADVOCATES NETWORK

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Introduction

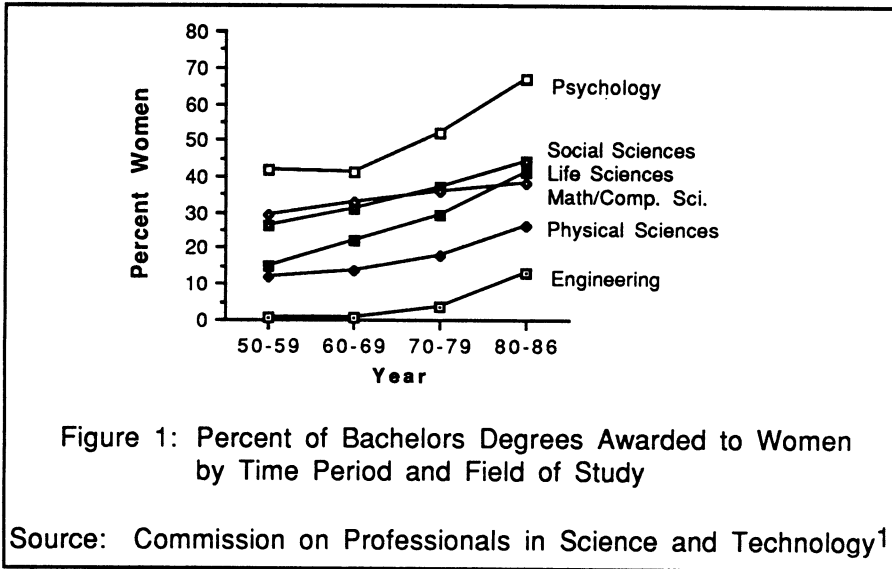
In an effort to provide greater access for women to careers in engineering, women in engineering program administrators at Purdue University, Stevens Institute of Technology and the University of Washington have joined together to initiate a national network of individuals interested in the recruitment, admission, retention, and graduation of women engineering students. The network will achieve this goal by assisting and encouraging engineering schools throughout the United States to establish innovative programs for women in engineering, or to expand the scope of existing programs.

The major objectives of WEPAN are to: (1) establish a national network of advocates of Women in Engineering Programs; (2) organize national conferences; (3) provide technical and programmatic assistance to institutions desiring to initiate, replicate, or expand Women in Engineering programs; (4) establish a central source of research, information and resource materials about women in engineering and related areas; and (5) disseminate information nationally.

Funding to initiate these efforts was received from the National Science Foundation. Contributions of money or human resources were also received from many public and private organizations. A listing of these organizations appears in the Appendix.

An Historical Perspective

Although women are approximately 53% of the U. S. population and now comprise more than half of the college and university population, engineering still has the lowest representation of women among all major disciplines. See Figure 1.

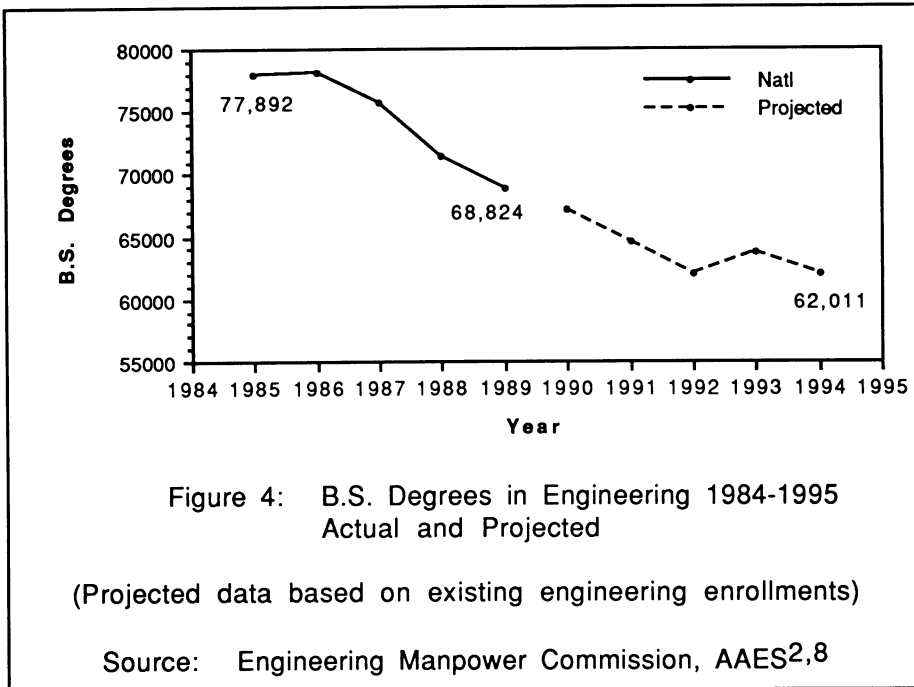


In the last fifteen years, bachelor's degrees granted to women in engineering grew from 3% to a high of 15% in 1987, but no growth has occurred since then and none is anticipated based on current enrollments.²

From the early 1970's to 1980 the number of recruitment and retention programs for women in engineering at U. S. colleges and universities developed at an astonishing rate. However, the lack of coordination among these programs resulted in a duplication of efforts, inefficient use of available funding, insufficient program evaluation and a slowing of progress toward educational equity for women in engineering^{3,4}.

In the next five years it is anticipated that demographic trends in the United States, accompanied by a declining interest in engineering indicated by high school students, will cause a drastic

decline in the number of students graduating with engineering degrees^{5,6,7}. This trend began in 1985 and is expected to continue at least through 1995, resulting in a decline of 15,000 B.S. degrees earned annually⁸.



The First National Conference

The first national conference of individuals interested in increasing the participation of women in engineering was held May 30 - June 1, 1990 in Washington, D.C. Two hundred individuals attended the conference representing a wide variety of institutions and interests: Women in Engineering Program Administrators; Deans and Assistant Deans; Department Heads; Interested Faculty; High School Math and Science Teachers; Industry Representatives; Support Program Administrators; Representatives of Government Agencies; and Representatives of Professional Organizations.

Workshops and presentations were developed to appeal to a broad base of individuals. A summary of the program is given here

for your information. A complete listing of the program, including topics and speakers appears in the Appendix.

Plenary Speakers



Dr. Shirley Malcolm, Head
Education and Human Resources
American Association for the
Advancement of Science



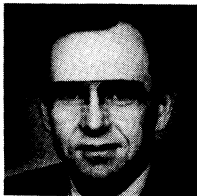
Dr. Bassam Shakhshiri
Assistant Director
National Science Foundation



Dr. Eleanor Baum, Dean
School of Engineering
The Cooper Union



Dr. Bernice Sandler, Executive Director
Project on the Status & Education of Women
American Association of Colleges



Dr. John White
Assistant Director
National Science Foundation

Sessions and Workshops

Sessions pertaining to the following topics were included in the conference program (a complete listing of presentations and speakers appears in the Appendix):

Getting a Program Started
 Early Intervention: K-8 Programs
 The Nuts and Bolts of Pre-College Program Planning
 Model Programs: Pre-College
 Summer Programs for High School Students
 The Nuts and Bolts of Program Planning: Retention Programs
 Model Programs: Retention
 Re-entry Programs
 Recruitment and Retention at the Graduate Level
 Institutionalizing Your Program
 Program Evaluation
 Funding: Opportunities Overview
 External Funding Sources: Corporate Foundations & Industry
 External Funding Sources: Government
 Making a Difference: A Student Alumnae Panel
 Issues of Diversity

Regional Meetings

The final sessions of the conference included regional meetings of attendees interested in continuing a network of advocates of women in engineering programs. Summaries of each regional meeting were then presented at a session of all participants. The most conclusive mandate emerging from these meetings was:

A new organization is needed which specifically addresses methods to attract and retain women in engineering. A majority of the participants attending this meeting were interested in joining such an organization, willing to pay membership dues, and eager to participate in annual conferences.

Conference Evaluation

Response to the conference was overwhelmingly positive. Many of the participants indicated that they felt isolated in their efforts for women in engineering and that the conference provided an opportunity to form a network which would alleviate that isolation. A questionnaire was designed to evaluate the effectiveness of the conference and approximately 50% of the attendees responded.

Preliminary evaluation results indicate that more than 80% of the respondents were very pleased with the conference registration, plenary topics and speakers, session topics and speakers, the conference site, resource room materials, and the cost of the conference. A sample of comments from the evaluation follows:

"Terrific conference - only one I have ever attended in which every session was so relevant!"

"Great conference...tremendous quality and energy behind effort."

"There is a real energy/excitement about the formation of this network."

"A wonderful conference! ...this was beautifully organized from start to finish. Wonderful resources, grand people. I hope this is just the beginning."

"Keep the lines open so that faculty, administrators and corporations can collaborate to recruit and retain women engineering students. It is the collaborative focus that I'd like to see reinforced. It certainly was the strength of this meeting."

"This has been the best, most focused and productive conference I've ever attended! You are to be commended for your hard work and creativity. This organization is long overdue."

Data Base of Research, Information, and Resource Materials

The National Science Foundation has also funded the creation of a data base on women in engineering, which resides at Purdue University. The data base will be updated continually and a mechanism is being developed to disseminate the information both electronically and in hard copy. Non members may also have access to the data base at a fee. A listing of information included in the data base appears in the Appendix.

The Future

The Women in Engineering Programs Advocates Network is currently in the process of incorporation and developing a formal procedure for membership. Additional information about the network can be obtained from any of the network's regional coordinators:

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References

1. Professional Women and Minorities, A Manpower Data Resource Service (1987) Commission on Professionals in Science and Technology, Washington, D.C.
2. Engineering Manpower Commission of the American Association of Engineering Societies, Inc. (1988). Engineering and Technology Degrees. Washington, D.C., annual series.
3. Daniels, J. Z. , "Women in Engineering: A Program Administrators Perspective, Engineering Education, May, 1988.
4. Daniels, J. Z., editor. Relations With Industry Division, American Society for Engineering Education. Directory of Women in Engineering Programs. 1987.
5. "The Science and Engineering Pipeline", N.S.F.: PRA Report 87-2: April 1987.
6. National Research Council, Engineering Employment Characteristics (NAS: Washington, D.C., 1985).
7. Vetter, Betty M., "Viable Solutions to Shortages in Science & Engineering", Engineering Education, October 15, 1987.
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