"WOMEN IN ENGINEERING ... A WINNING COMBINATION"
PROGRAM

Kathleen J. Ganster

University of Pittsburgh, Pittsburgh, Pennsylvania

Concerned about the low numbers of women traditionally attracted to engineering studies and careers, the School of Engineering, University of Pittsburgh, in conjunction with Carnegie Mellon University and the Professional Chapter of the Society of Women Engineers developed a one-day "Women in Engineering" event. The goals of the program were:

1. to increase the awareness of young prospective female students about engineering careers with the eventual goal of recruiting them to study engineering;

2. educate high school teachers and counselors so that they may also encourage young women to pursue engineering careers; and

3. to encourage current engineering students to complete their college careers.

Thus, the "Women in Engineering ... A Winning Combination" Program was born. This paper will discuss the first two programs (the first held in 1990, the second in 1991).

The advantage of the one-day program was that a quality program could be organized relatively quickly using limited financial and staff resources. The one-day format also allowed a great number of people to attend who may have been prevented from attending a longer program due to other commitments.

Co-Hosting the program with our colleagues from CMU and SWE also had many advantages. The most obvious was that we were able to poll our resources and share costs. We also had a larger data base and number of contact sources for marketing. The larger resource pools also proved to be immensely valuable in scheduling alumnae and student panels. Those who attended the conference were able to benefit from sharing experiences with
a more diverse group than would have been represented by one institution or organization. It was also advantageous to have members of SWE available to talk with the program attendees for career exposure purposes. It is important to note that Pitt and CMU are located approximately three miles from each other. Had the institutions not been so conveniently located, it could have been very difficult for co-sponsoring such a program. The program coordination did involve several meetings and at least in the beginning, several trips between the two campuses. Some of this scheduling was completed via telephone, mail and fax modes of communication.

An important key of the success of the program is attracting a quality keynote speaker. I had heard Dr. Eleanor Baum, Dean of the Albert Nerken School of Engineering, Cooper Union, speak at that first WEPAN Conference. Not only was Dr. Baum the lone female Dean of the School of Engineering at that time, she was also an entertaining speaker! She accepted our invitation to be our keynote speaker and indeed lived up to our expectations.

For our second program, the National President of the Professional Chapter of SWE, Ms. Jill Baylor, joined us. Ms. Baylor was also an impressive speaker.

This year, for the third year of our program, we have Ms. Anna Salguero, the current president of SWE scheduled to be the keynote speaker.

After the keynote session, alumnae presented a panel discussion "Engineering as a Career." Four female engineers briefly discussed their careers, studies and experiences regarding engineering. This segment of the program was added after the first year and proved to be a very popular part of the program. Following the alumnae panel discussion, the program was divided into two separate components. These two components were: one designed for high school mathematics and science teachers and guidance counselors to assist them in developing awareness in their students about engineering careers; the other component was for young women in tenth, eleventh and twelfth grades who may be interested in pursuing an engineering career. The students attended a panel discussion of current Pitt and CMU engineering students while the high school teachers and counselors attended a workshop designed by faculty members from Pitt, CMU and a guest faculty member from Slippery Rock University. Parents were invited to attend whichever session they felt would be most beneficial to them.
Three female engineering students from both institutions talked with the young women in attendance about choosing engineering as a course of studies, high school preparation, choosing a college and obstacles that they may have encountered, if any. The first year of the program, a male student on the panel discussed his views on engineering studies and also how male engineering students perceive their female counterparts. It was an interesting aspect of this panel discussion. The student panel discussion and the question-and-answer session that followed was also very popular with the young women in attendance.

Realizing the importance of the role of mathematics and science teachers in career awareness of young people, we developed a workshop specifically to meet their needs. The first year, faculty discussed "are you teaching equitably" which looked at teaching methods for male students versus female students. The second program, the workshop was titled "Your Role in Helping Girls Explore Science, Math, and Engineering." The faculty members discussed science, math, and engineering careers, what to encourage and suggest for young people interested in these careers, and resources available. This workshop was much better received than the first year's, although both had favorable reviews.

The formal program ended with these two presentations. The first year of the program, optional campus tours were offered but response was so poor, the tours were eliminated for the second program.

The night before the actual program, we hosted a reception for our guest speakers, SWE members, alumnae, faculty, and female graduate students from both Pitt and CMU. As planned, the reception was a nice way for those involved with the program to meet informally. It also served as a great networking system for our faculty members and perhaps more importantly, the graduate students. Although, as mentioned, the two institutions are geographically very close, there was no formal mechanism for the students to meet. The reception allowed the students an opportunity to meet and discuss research projects, studies, etc.

Registration and a continental breakfast was scheduled from 8:30 A.M. to 9:00 A.M. For the program scheduled for this year, however, registration will begin at 9:30 A.M. to allow for travel time for the school sponsored trips.

A luncheon was held for the speakers, program organizers and selected student leaders for a program conclusion.
Timing of the program proved to be a critical factor. The program was offered late fall both years which was timely for the seniors looking at colleges and also for the younger students as they began career exploration. The program was held on a Saturday the first year, and as a result was poorly attended by teachers and counselors. Additionally, there are many Saturday activities for high school students which compete with the Saturday program. The second year, the program was held on a Friday and attendance nearly doubled. Several schools sponsored field trips, bringing groups of young women plus teachers and counselors. Problems with the Friday scheduling was that the college students involved had to miss any Friday morning classes, although professors were very receptive to student participation. We also found alumnae usually received work release time for this important program. The move from Saturday to Friday was probably the most successful change to the program.

As far as the actual format of the program, the first year the keynote speech (including introductions to the program) lasted an hour. We found this to be too long. The student panel discussion was also too long at one hour and fifteen minutes. The second year, the introduction and keynote speech lasted forty-five minutes, the alumnae panel discussion which had been added was forty-five minutes, and the student panel discussion and teacher workshop were both trimmed to forty-five minutes. These changes worked well. The program had energetic feel the second year with the improvements and time changes. The program concluded at 12:15 P.M., although many speakers, students, and those attending the program informally chatted another half hour or so. Concluding in the early afternoon allows those traveling on school sponsored trips time to arrive back at the home high school in a timely fashion.

Marketing of the program was primarily done through mailings both to students and to high schools. Mathematics and science teachers and counselors from the Greater Pittsburgh Area (150 mile radius) were sent invitations. They were also asked to identify and invite their students who may benefit from such an event. Mailings were sent to students using data bases from the admissions offices at Pitt and CMU. (Local community colleges, regional campuses and those with formal agreements with Pitt were also invited.) Registration forms were included in all mailings.

The mailings to the teachers was immensely successful, particularly as mentioned for the school sponsored trips. Marketing methods will remain the same due to the success.
The mailings were the most costly factor of the program. Other costs included the reception, continental breakfast, luncheon, printing, and any fees that may need to be paid to the speaker. Both programs were held for less than $3500. (This figure does not include staff time.)

With the exception of scheduling the keynote speaker well in advance (this year's speaker was invited not quite one year in advance), the programming scheduling may be completed in approximately four months. It is important to allow enough time for scheduling rooms (six months in advance at the University of Pittsburgh), bulk mailings and turn-around time for the registration forms.

The attendance for both programs, particularly the second year, was good. The first (1990), 82 students, 5 teachers/counselors and 76 guests attended the program. This past year (1991), 191 students, 17 teacher/counselors, and 70 guests attended the program.

We feel the program has been successful due to responses on the evaluations and verbal feedback about the program. While we know that some of the students have gone on to study engineering at one of the two institutions involved with the program, we do not know if the students have chosen engineering at another institution other than Pitt or CMU. Also many of the young women who attended the program would still be too young for college at this time.

In summary, "The Women in Engineering ... A Winning Combination" program has been an effective program for Carnegie Mellon University and the University of Pittsburgh in our efforts to educate young women and teachers and counselors about engineering courses. We look forward to our third program scheduled for November 20, 1992.