USING SUMMER INTERNSHIPS TO RECRUIT FEMALE GRADUATE
STUDENTS INTO SCIENCE AND ENGINEERING

Myrna Whigham, Ph.D.

Program for Women in Science and Engineering
Iowa State University
Ames, Iowa

The Program for Women in Science and Engineering at Iowa State University has an undergraduate research internship program that started the summer of 1987 and has continued each summer. The purpose of the program is to recruit women into graduate school in science and engineering programs. An attempt has been made to recruit at least half of the students from other campuses.

During the summer experience, students are placed in a research laboratory working on a project for a professor. At the conclusion of the project, a paper is due and the student explains their summer research work at a poster presentation session. During the eight week internship, students also attend seminars and social events. The seminars include topics of special concern to women as well as information on how to fund and apply for graduate school. Students interact with many faculty in addition to their assigned mentor. The purpose of this is to introduce them to a breadth of topics as research possibilities. They also have the opportunity to interact with graduate students and get the student's view point on graduate school. The seminars have proved to be an excellent way for the students to interact but an unexpected advantage was pulling together faculty interested in women's issues to network and help the effort on campus.

The program is funded by companies such as John Deere, Honeywell, Motorola, Rockwell, and Pella Rollscreen, groups such as the Central Iowa Division of the Iowa Engineering Society, individual contributions, and contributions from the participating colleges. Some researchers use their grant money and are responsible for all costs concerning a particular student. A creative approach is used and each student may be funded differently. We have 25 undergraduate interns placed for this summer so the salary commitment is $62,500 ($2500 each).

As we begin our fifth summer of the program, a decision was made to do a follow-up study on previous interns to ascertain the effectiveness of the program. Surveys were sent to 56 previous interns and 42 were returned (75%).

Much information is known about the previous interns. Out of the 17 undergraduate students who have graduated, all had grade point averages above 3.00 at the time of graduation (based on a 4.00 scale). The breakdown is as follows: 41.2% had grade point averages between 3.76 and 4.00; 29.4% had grade point averages between 3.75 and 3.51; 23.5% had grade point averages between 3.50 and 3.26; 5.9% had grade point averages between 3.25 and 3.00.

The interns were recruited from a variety of institutions as follows: 4.7% were from private colleges or universities outside of Iowa, 11.6% were from private colleges or universities in Iowa, 27.9% were from state universities outside of Iowa, 2.3% were from two-year colleges outside of Iowa, 2.3% were from the University of Northern Iowa, 2.3% were from the University of Iowa, and 48.8% were from Iowa State University.

WOMEN IN ENGINEERING CONFERENCE: A NATIONAL INITIATIVE
1991 WEPAN National Conference
The primary areas of academic study for the undergraduates included Liberal Arts and Sciences (46.5%), Engineering (30.2%), Agriculture (11.6%), Family and Consumer Science (9.3%), and Veterinary Medicine (2.3%).

Other information, such as intern-mentor relationships, is presented in the following graphs.

**ACADEMIC COLLEGE IN WHICH INTERNS WERE PLACED**

- Veterinary 9.3%
- Agriculture 25.6%
- LAS 27.9%
- Engineering 27.9%
- FCS 9.3%

Results based on 43 responses out of 56 surveys.

**FREQUENCY OF CONTACT WITH MENTOR AFTER SUMMER INTERNSHIP ENDED (UNDERGRADUATE)**

- More than 4 times per year 33.9%
- No Contact 39.3%
- 3-4 times per year 8.9%
- Less than once a year 1.8%
- 1-2 times per year 16.1%

Results based on 43 responses out of 56 surveys.
FORM OF ASSISTANCE FROM MENTOR (UNDERGRADUATE)

Results based on the 35 students that HAD CONTACT with their mentor.

FORM OF CONTACT WITH MENTOR AFTER SUMMER INTERNSHIP ENDED (FOR THOSE THAT HAD CONTACT) (UNDERGRADUATE)

Results based on 43 responses out of 56 surveys.

WOMEN IN ENGINEERING CONFERENCE: A NATIONAL INITIATIVE
1991 WEPAN National Conference
The primary goal of the program is to recruit women into graduate school. Is this goal being met by a research internship program? While the evidence is not conclusive because a control situation is not possible, a higher proportion of the students appear to be planning on graduate school than expected. What students actually did after graduating illustrates a high percentage not only planned on getting a degree but actually attended graduate school.

**Highest Degree Student Ultimately Plans to Attain (Undergraduate)**

- Bachelor's: 47%
- Master's: 23.3%
- PhD: 22.0%

Results based on 43 responses out of 56 surveys.

**What the Students Did Immediately After Graduation (Undergraduate)**

- Other: 16.7%
- Entered Graduate Program: 55.5%
- Worked: 27.9%

Results based on 18 students that had graduated.

*Women in Engineering Conference: A National Initiative*  
1991 WEPAN National Conference
CURRENT STATUS OF THE STUDENTS THAT HAVE GRADUATED (UNDERGRADUATE INTERNS)

- Graduate school: 38.9%
- Working: 27.8%
- Other: 27.8%
- Graduate school and work: 5.6%

Results based on 18 students that have graduated.

The purpose of our program was to recruit women into graduate school, and not specifically to Iowa State. The belief is that if we think long term, our best interest is served by helping the student find the best institutional fit possible. If they obtain graduate degrees at another institution, perhaps they will become faculty members at ISU. The following graph shows that they attend a variety of institutions.

COLLEGE OR UNIVERSITY AT WHICH STUDENTS PERFORMED GRADUATE WORK. (UNDERGRADUATE INTERNS)

- ISU: 33.3%
- State university not in Iowa: 26.7%
- University in Iowa: 26.7%
- University of I: 13.3%

Results based on 15 students attending graduate school.

Women in Engineering Conference: A National Initiative
1991 WEPAN National Conference
What did the students think about the value of the program?

**RATING OF SUMMER INTERNSHIP EXPERIENCE**
(UNDERGRADUATE INTERNS)

- **SOMewhat Valuable**: 9.3%
- **NOT Too Valuable**: 2.3%
- **Very Valuable**: 46.5%
- **Extremely Valuable**: 41.5%

Results based on 43 responses out of 56 surveys

I believe the key points about this program include the following data: a large percentage of the students (60%) had more than one contact a year with their mentors after the program was completed; ninety-five percent of the students ultimately plan to get a masters or Ph.D. degree; fifty-five percent of the students entered a graduate program immediately upon graduation; eighty-eight percent of the students said the program was very valuable or extremely valuable.