NEW JERSEY COMMUNITY COLLEGE WOMEN IN ENGINEERING/TECHNOLOGY

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Between Fall 1991 and Spring 1993, over 200 women from 14 community colleges in New Jersey attended either a Career Day or State Conference for Women in Engineering sponsored by the National Science Foundation and the New Jersey Institute of Technology. Only 86 of these women returned completed surveys, however. These are the results: 91% found these event(s) helpful; 74% said they were inspired; 70% said they learned something new, e.g., differences between engineering sub-disciplines, career options, opportunities and support for difficulties faced by women in engineering.

The parts of the program they liked best were networking and women engineering faculty. The parts they liked least were: the day was too short or not enough details on a particular field were offered. Seventy-eight percent of the respondents were students, 9% faculty, and 5% Administrators/Staff; 8% no answers. Regarding age: 56% were under 30 years of age while 44% were 30 years and older.

TABLE 1 - GENDER

Female	97%
Male	3%
N = 86	100%

TABLE 2 - AGE

17-22 Traditional College Student	31%
23-29	25%
30-40	28%
41 and Over	11%
No Answer	5%
N = 86	100%

TABLE 3 - RACE/ETHNICITY

Caucasian (American)	34%
African-American	21%
Hispanic & Caribbean	7%
Asian & Middle Eastern (Arabic, Iranian, Indian, Chinese)	13%
No Answer	25%
N = 86	100%

TABLE 4 - COLLEGE MAJOR

Math/science (pharmacy, environmental science, nursing, biochemistry, physics and chemistry)	23%
EE (electrical engineering)	10%
Computer engineering & computer science	10%
ChE (chemical engineering)	6%
ME (mechanical engineering)	4%
CE (civil engineering)	6%
Other engineering (includes industrial engineering, aerospace engineering engineering science, and pre-engineering)	18%
Engineering technology (includes electronic technology and construction/CIM)	7%
Soc Sci/undecided (includes psychology, general, nutrition, social science, counseling)	16%
N = 86	100%

The most interesting find concerns women who have relatives who are engineers (See Tables 5-7): 45% have an engineer in the family; 54% do not. Of those who do, only 8% are female engineer relatives; 11% have multiple male engineers in the family! But the most interesting find concerns ethnicity. While 2/3 of white and black American women respondents do not have a relative who is an engineer; over 2/3 of Hispanics, Caribbeans, Asian and Middle Eastern students surveyed do.

TABLE 5 - DO YOU HAVE AN ENGINEER RELATIVE?

Yes	45%
No	54%
No Answer	1%
N = 86	100%

TABLE 6 - WHO IS ENGINEER RELATIVE?

Female relative (mother, sister, daughter)	8%
Spouse/husband	7%
Father	2%
Uncle	2%
Brother	2%
Cousin (male or sex unspecified)	4%
Other male (in-law, grandparent, son)	7%
Many male (more than one relative and no female specifically mentioned)	11%
No answer	57%
N = 86	100%

TABLE 7 - ENGINEER RELATIVE BY ETHNICITY

	Engineer Relative			
Ethnicity	Yes	No	Total#	%
White American	31%	69%	29	(100%)
Black American	33%	67%	18	(100%)
Hispanic & Carribean	67%	33%	6	(100%)
Asian & Middle Eastern	73%	27%	11	(100%)
N = 64			64	(100%)

Table 7 suggests two things 1) that recruitment of women engineers could be targeted at females in male engineering families for higher yield than scatter shot recruiting; and 2) that this approach may produce even higher yields of female engineers among some ethnicities/ nationalities, especially Hispanics, Caribbeans and Asians.

TABLE 8 - FUTURE PLAN

Associate Degree	4%
Bachelors Degree	25%
Masters Degree	14%
Ph.D./medical school/law school	7%
Work	22%
No Answer	28%
N = 86	100%

Only 4% of community college women surveyed plan to only get an associates degree. Twenty-two percent plan to go to work - so that accounts for about 1/4 of community women; 1/4 don't know yet about their future; but that leaves about 1/2 who plan to continue on with their education. One-fourth plan to get their batchelors degree and 1/5 plan to go to graduate school. This defies conventional stereotypes about people with associates degrees. Increasingly, due to economic constraints, American students are using their local community colleges as either their first stepping stone or as a returning stepping stone toward higher degrees.

TABLE 9 - MOTHER'S OCCUPATION

Traditional Female + Houseworker	55%
Traditional Male (Business, Eng.)	22%
Dead/Retired/No Answer	23%
TOTAL	100%

TABLE 10 - FATHER'S OCCUPATION

TECHNICAL (Technician, Eng., Sci., Math	43%
BUSINESS	17%
NON-TECHNICAL	13%
DEAD/RETIRED/NO ANSWER	27%
TOTAL	100%

This suggests that the majority of community college women surveyed in Engineering Technology come from families with conventional occupational sex roles: 55% have mothers in traditional female occupations or as houseworkers; 73% have fathers in traditional male occupations. Let me pause to speculate: This data makes me wonder if the women students aren't more identified with their fathers. This would be a fascinating research topic. Some interesting pieces of data do reveal however that: over 2/5 of those surveyed have fathers who work in technical fields, suggesting that the average community college woman student of engineering technology will be one whose mother does traditional female labor with a father in the technical or business sector.

But let's look at the exception. It's always interesting to look at the exception: 1/5 of those surveyed have mothers who work in traditional male occupations. When we break this data on mother's occupational sex roles down by ethnicity, something very interesting happens. Of those surveyed, all Hispanic and Caribbean mothers (100%) work in traditional male occupations; none in traditional female. Fascinating find! Who's the next most likely racial/ethnic group to break sex role occupational stereotyping? White American females. Fo rty percent of white mothers work in traditional male jobs,but the majority (60%) still work in stereotypical female jobs.

Almost 4/5 of both African Americans, Asian and Middle Eastern women students surveyed have mothers who work in traditional female jobs. It is among these racial/ethnic groups we find the most traditional sex stereotypes of what is women's work and what is men's work.

More research is needed on ethnicity/race and occupation among women engineering and technology students to see if the New Jersey data will be replicated.