

**THE YEAR OF THE WOMEN: A Report on the First Year of Coeducation at
Rose-Hulman Institute of Technology**

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In the fall of 1995, Rose-Hulman Institute of Technology admitted undergraduate women for the first time in its 121 years of existence. By June 1996, we will have completed our first full year as a coeducational institution. Drawing on statistical data, observation, and personal interviews with students, faculty, and staff, we will assess the impact of this change on our first female students and our educational environment. In this presentation, we will discuss the three primary stages involved in successfully changing from an all-male environment to a coeducational institution: preparation, implementation, and evaluation.

From the time that the Rose-Hulman Board of Managers voted to change the school's charter in 1991 to the enrollment of the first female undergraduates in 1995, administrators, faculty, staff, and students worked together to change the climate of the Institute, both physical and human. One of the most successful steps was forming a consortium with Indiana State University in 1994 which allowed eleven female students planning to attend Rose-Hulman in 1995 to cross-enroll. These women took introductory calculus and chemistry courses at Rose-Hulman, while taking military history (a freshman requirement at Rose-Hulman), humanities and social science courses at Indiana State University. Through this agreement, all women were housed on the same residence hall floor at Indiana State, and Rose-Hulman provided daily transportation, approximately 8 miles one way, to and from campus. Initially, the women were to have access to computers on both campuses; however, students often found themselves returning to the Rose campus in the evenings for their computer support needs. Eight of the eleven women entered Rose-Hulman as sophomores the following year. These women, four chemical engineering majors, two mechanical engineering majors, one civil engineering major, and one physics major have served the Rose community in a number of capacities ranging from some being summer program counselors to others being sophomore advisors.

To plan programs, provide resources, and better familiarize the Rose-Hulman campus with issues related to gender, the President of Rose-Hulman appointed eight faculty and eight staff members to serve on the Commission for the Implementation of Coeducation. The committee began by viewing such videos as *Tale of 'O'* and *Class Divided*, identifying key areas and topics to be addressed, and reading materials

related to learning styles and myths such as *Women's Ways of Knowing*.

During the 1992-93 academic year, four female speakers/consultants -- the President of WEPAN, the Director of a Women's Study Program, an Educational Consultant, and a Nuclear Energy Industry Consultant-- visited campus to meet with faculty and students. Rose-Hulman also hosted the Regional Meeting of the American Society of Engineering Education and a panel of female engineers from Alcoa who discussed their experiences in the corporate environment.

During 1993-1994, Rose hosted representatives from industry and education ranging from a Human Resource Consultant from Dupont Corporation on "Diversity- A Corporate Perspective" to representatives from Texas Instruments to the Chair of the Chemistry Department of Eastern Michigan. Rose was especially excited about welcoming Janice Ford, an astronaut from the National Aerospace and Science Administration, to campus.

External speakers presenting workshops in 1994-95 included Anne Fausto-Sterling discussing "Myths of Gender and Biological Theories about Men and Women" and a Alisha Waller on "Gender-based Communication Styles."

Sub-committees of the Coeducation Implementation Commission led the internal efforts to educate and inform the campus community about the transition process. One committee developed and published the *Coeducation Update*, a newsletter, highlighting events and articles related to coeducation. Another committee, led by Dr. Caroline Carvill and the Director of the Library developed and presented a Classroom Climate seminar to individual academic departments. Susan Smith developed and coordinated Fast Forward, a summer residential program to interest middle school girls in math, science, and engineering, which became a reality in the summer of 1994. Catapult, an existing three-week summer engineering and science program for high school juniors began admitting females in the summer of 1994. From 1992-1995, Rose regularly sent administrators and faculty to the WEPAN Midwest Regional Training Seminar and the National WEPAN conference. In addition, our library's resources relating to the recruitment and retention of women in science, engineering and mathematics grew significantly. Funding for both external and internal activities was provided by the President of Rose-Hulman, the Rose-Hulman Board of Managers, and the Sloan Foundation.

In addition to changes in the human climate, a number of physical changes occurred on campus. Written documents, such as Admissions materials, were revised to reflect the Institute's transition to coeducation. Gender specific phrases were eliminated to better portray the new learning environment and to offer greater appeal to potential female undergraduate students. Academic buildings were remodeled to provide additional women's restrooms. The Residence Hall Coeducation Committee consisting of Student Affairs staff and students suggested needed changes related to

campus housing facilities. Existing residence halls were updated and modified by installing external locks on residence hall stairwell doors and remodeling restrooms. To provide all students with an increased sense of security, emergency call boxes and additional lighting were installed around campus, and two student night host positions were established to monitor residence hall activity and help ensure student safety.

The first freshman women arrived on campus in mid-August to attend Fast Track Calculus, a program for exceptionally strong students which condenses first-year calculus into a few weeks. By the time the fall quarter began, 100 women (almost 25% of the freshman class plus some transfer students) enrolled as full-time undergraduates. Female transfer students, especially those serving as Resident Assistants and Sophomore Advisors, played a vital role in acclimating freshman coeds to all academic and extracurricular aspects of student life.

The week before classes begin, all freshman students participate in our intensive orientation program. As part of that process, students go through extensive testing. Many of these tests showed little difference between the male and female students, but a few did provide varying results. The Predicated Index for grade point average for male students was 2.87; for women 3.02. The math SAT scores were 687 for men, 686 for women; verbal were 563 for men, 596 for women.

Students take a variety of skills and conceptual tests. The Force Concept Inventory, which measures belief systems for Newtonian concepts, and whether those are accurate for motion and force, shows the differences between students' assumptions and the correct answers. On this test, men scored 16.2, and women 11.5. Hestenes' Mechanics Baseline test assesses students' knowledge of basic concepts in mechanics. Men scored 10.2 and women 8.6. The California Critical Thinking Skills Test and Dispositions Inventory assesses five cognitive skills: analysis, interpretation, inference, evaluation, and explanation. Here we saw little difference, with men scoring 118.4 and women 118.2. On the Cognitive Complexity Index, men scored 335 and women 336.

Differences also showed up on responses to the National Institutional Survey. Women students indicated their own level of competitiveness lower than the men (56% to 71%), but their level of stubbornness higher (71% to 47%). In reasons noted as very important in deciding to go to college, to gain a general education and to become a more cultured person ranked higher with women (75% to 52%; 47% to 24%), while making more money ranked lower (68% to 85%). When questioned about objectives considered to be essential or very important in life, women ranked promoting racial understanding, participating in community action, and being involved in environmental clean-up higher than men, while ranking raising a family lower (60% to 79%). More women anticipated graduating with honors (28% to 15%), getting a job to pay expenses (58% to 45%), and participating in volunteer/community service (34% to 12%).

For academic majors, freshman women declared in different patterns than men. Over 25% declared chemical engineering, about 18% for men, 7.5% in chemistry, about 2.5% for men, and 12.5% in mechanical engineering, over 25% for men. More women also declared physics and applied optics than men students.

Women students succeeded at Rose-Hulman by all standards. The grade point averages after the first quarter were 3.00 for men, 2.98 for women. Only two women students left during the first year--one for academic reasons and one for changes in career plans. They participated in student government, student clubs and organizations, tutored in the Learning Center, and many other activities. A chapter of the Society of Women Engineers formed with 23 students.

Rose-Hulman responds to student interests in forming clubs and chapters of national organizations. Two groups of women formed sororities (or women's fraternities). These two groups contacted national organizations, hosted several different ones on campus, set up chapters, went through the process of becoming nationally recognized, and formed the first chapters. Chi Omega and Delta Delta Delta both initiated their first pledge classes in the spring of 1996, after a great deal of hard work by the charter members.

The first women's basketball team, made up of six courageous young women, played a full season, coached by Wanda Schwartz, who began in May of 1995. While not successful in the win/loss column, they generated a great deal of fan support and a quick rivalry with St.-Mary-of-the-Woods College from West Terre Haute. Women athletes also participated in cross-country, indoor and outdoor track and field, and swimming. This fall, Rose-Hulman will also field women's volleyball and tennis teams.

Surveys, focus groups, and informal discussions have all reflected that women students are pleased with their decision to attend Rose-Hulman and feel that the campus has welcomed them. With all the emphasis on the women's satisfaction levels, we cannot overlook the significant impact they have had on Rose-Hulman. Diversifying our student body has resulted in many positive changes, both obvious and subtle, in the academic and co-curricular environment.