

An Engineering Experiment

A study examines the experiences of engineering students

IS SOMETHING WRONG with engineering education? That's the question raised by two schools, Smith College and the Franklin W. Olin College of Engineering, that claim to offer a better approach. Susan Silbey, professor of sociology and anthropology at MIT, and Carroll Seron, a professor of sociology at University of California, Irvine, are studying how Smith and Olin compare with two more established schools, MIT and the University of Massachusetts Amherst. The study, called FuturePaths, will track cohorts of undergraduate students from their freshman year through their first year after graduation to see whether new models of education can affect the career path of engineers.

The two new programs are "experiments poised at the heart of the engineering profession," Silbey says. In 1999, Smith College in Northampton, MA, started the first engineering program offered at a women's school, with the ambitious goal

of making a largely male profession more attractive to women. The F. W. Olin Foundation opened its own engineering college in Needham, MA, in 2002, claiming to offer a new curriculum that would create more creative and entrepreneurial engineers. Both schools emphasize flexibility and a broad liberal arts education.

Silbey and Seron recognized a perfect opportunity to document a natural experiment. As controls, they chose MIT, the established leader in engineering, and the University of Massachusetts, a public, land-grant university like the majority of those with engineering schools in the United States. Silbey says that the four schools represent "competing models that we can learn from." The research team will collect data through student Web surveys; in-depth interviews with students, faculty, and administrators; classroom observation; and diaries written by 10 students from each school for the duration of the study. The researchers will be looking

at the students' experiences, their choice of major, the demographics of the graduating classes, and their career decisions after graduation.

Though FuturePaths, which is funded by a grant from the National Science Foundation, has only completed its second year, one finding has already emerged: because students in the new schools learn by tackling specific projects, Seron says, they "get their hands dirty fast." These students report that they immediately understand what it means to be an engineer. "The socialization happens faster," Seron adds, but it remains to be seen whether this early immersion has a long-term impact on their decisions.

The study will also examine whether the new schools can sustain their educational reforms. Silbey says that attempts to innovate within a profession are often curbed by pressures to conform to existing models. "There are too many constraints pushing in the other direction, and it will take an heroic effort to produce something different." But the pressure can work both ways: experimental teaching methods at the new schools may actually persuade MIT and other established programs to adopt changes of their own.

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