

U.S. engineering with a foreign accent

An undercurrent of suspicion and resentment directed against foreign-born engineers working in the United States runs through parts of the U.S. engineering community. This controversy is fueled by stories of foreign engineers taking jobs at salaries much below those normally paid to engineers in the United States and of students suing colleges to recover tuition fees after taking courses from professors or teaching assistants who allegedly could barely speak English. This week, the National Academy of Engineering (NAE), based in Washington, D.C., issued a report that tries to put these and related concerns into perspective and supplies data supporting some complaints and refuting others.

The issues have been debated widely in the U.S. engineering community, and, says NAE President Robert M. White, "we wanted to put some substance and data behind these discussions."

The report notes that the proportion of foreign-born engineers living and working in the United States has gradually risen from 8.5 percent in 1972 to 17.5 percent in 1982. "We expect it to go further upward," says Stanford S. Penner of the University of California at San Diego, who chaired the study committee.

Moreover, the increase has occurred disproportionately in the academic sector. For example, the proportion of foreign assistant professors has gone from 10 percent in 1972 to more than 50 percent today.

At the same time, the number of foreign applicants for graduate study in engineering is greater than the number of U.S. applicants. In addition, nearly 60 percent of the foreign students who obtain doctorates end up staying in the United States.

"If we were to shut off the supply of foreign engineers, we would be in trouble," says Penner. These engineers bring a much-needed expertise, especially in fields such as materials science, he says, and with too few U.S. students interested in pursuing engineering at the graduate level, foreign students fill the gap. To increase the number of U.S.-born graduate students, the NAE study recommends the establishment of competitive fellowship programs to make graduate study an attractive, cost-effective alternative to immediate employment.

The effect of the influx of foreign talent, though beneficial in many ways, raises sensitive issues about the effect of foreign-born faculty members on the quality of U.S. engineering education, the report says. Anecdotal evidence points to language difficulties that may hinder native-born students and attitudes that could discourage female and minority students from entering the engineering

profession.

"Given the importance of teaching personnel in the training of an essential engineering talent pool, any adverse effects could span generations," the report states. "Consequently, careful

monitoring of the development and performance of the academic engineering establishment — both indigenous and foreign-born — must be viewed as a continuing, high-priority obligation."

— I. Peterson

Do Type A men have a survival edge?

Welcome to the paradoxical world of Type A behavior. Nearly 30 years after this personality pattern was first linked to an increased risk of developing heart disease, a study in the Jan. 14 *NEW ENGLAND JOURNAL OF MEDICINE* concludes that hard-charging Type A men may be more likely to survive a second heart attack than their easygoing Type B counterparts.

"We struggled considerably with this finding," says epidemiologist David R. Ragland of the University of California at Berkeley, who conducted the study with Berkeley statistician Richard J. Brand. "But I would tend to say that Type A behavior is less likely [than was believed] to be important as a risk factor for dying from coronary heart disease."

In an editorial accompanying the report, psychiatrist and Type A researcher Joel J. Dimsdale of the University of California at San Diego says the findings show that Type A behavior is not linked to coronary heart disease in a simple, consistent way. Still, he notes that "something is going on . . . between personality and heart disease."

Researchers originally characterized Type A individuals as intensely competitive, impatient, controlling and ambitious, often bereft of clear goals. Type Bs, on the other hand, were said to be relaxed, cooperative and content. In the past decade, other aspects of Type A behavior — including hostility, cynicism and depression — have been explored as key promoters of heart disease.

The Berkeley researchers focused on the initial group of Type A and Type B men studied in the 1960s, 257 of whom had developed heart disease by 1969. Equal proportions of Type A and Type B subjects died suddenly of their first heart attack, a surprising finding in itself. But over the next 13 years, the 160 surviving Type As were only 58 percent as likely to die of another heart attack as the 71 surviving Type Bs. The lower mortality rate held for both younger (ages 39 to 54) and older (ages 55 to 70) Type As who survived an initial heart attack.

Ragland and Brand suggest that Type A patients may be more likely to comply with medical treatment or change their behavior after a heart attack. Type As may also pay closer attention to telltale cardiac symptoms and seek medical care earlier than Type Bs, they say.

However, cardiologist Meyer Friedman of Mt. Zion Hospital in San Francisco, co-director of the original Type A research, says the new data may be based on antiquated diagnoses. Many physical signs of Type A behavior, such as facial tics, rapid blinking, rushed speech and fist clenching, were not known when subjects in the study were diagnosed in 1960, says Friedman. The early interviews tested mainly for impatience, but not for hostility, he adds. According to Friedman, all of the men now would be diagnosed as Type As.

"I think [Ragland and Brand's] study is a disservice," he says.

Friedman's follow-up study, reported in 1975, found that over 8 1/2 years, Type A individuals had roughly twice the chance of developing coronary heart disease as Type Bs, regardless of other risk factors such as cigarette smoking. In more recent work, he has found that men who modify their Type A behavior through group counseling are at a reduced risk for developing heart disease (SN: 8/18/84, p.109).

But Ragland and his colleagues contend that their findings suggest that efforts to enhance Type A survival through psychotherapy and behavior change may not be called for.

And Friedman's former collaborator, cardiologist Ray Rosenman of SRI International in Menlo Park, Calif., says the Berkeley researchers are on the right track. Furthermore, he contends that the original interviews picked up hostility as well as impatience, thus making the diagnoses accurate.

"But we only have hypotheses as to why Type As survive better," says Rosenman. It may be, he notes, that Type As are more willing to change after a first heart attack. Possible risks in the more passive, relaxed approach of Type Bs have not been closely examined, he adds.

Rosenman and his co-workers are now analyzing follow-up data from about 2,000 men included in the 1960 study to see if, among other things, Type As suffer more heart attacks than Type Bs, although men in the former group are more likely to survive.

In the last five years, says Brand, more studies have appeared showing no relation between Type A and heart attack risk. "This," he says, "has become a very confusing area of research."

— B. Bower