

**MORE LETTERS ON GRISKEY RATINGS**

Sir:

I'll be surprised if this is not one of a flood of letters you will get in reply to Gill's report, Carberry's response and Griskey's feature. The subject clearly matters to us all, yet becomes absurd when dissected too closely and publicized too much. In a hope that it may do more good than harm I offer the following observations:

1. Peer evaluations or perceptions may or may not relate to other relevant facts or substance but are of importance to us of and in themselves. The danger is positive feedback whereby the perception or reputation becomes an end in itself. I fear that Gill, Carberry, Griskey and perhaps all of us, are quickly caught in that cycle.
2. While some departments stand out as particularly excellent, and perhaps some as particularly poor I contend that with much fuzziness in what is being measured and large possible errors in measurement the rankings become rapidly meaningless apart from extremes. I am sure no department does or should accept a self image as second or third rate. This is not a pennant race whereby because someone is first it follows that there must be a number two, twenty and 115. It is not a zero sum game and Minnesota's or Buffalo's gain need not be MIT's or Notre Dame's loss unless we insist on making it so.
3. The Griskey feature displays data in some helpful ways making it possible to view and compare some operating characteristics. His GRPI may even be a useful lumped parameter for looking at some distribution of performance. Not surprisingly Griskey's Figure 5 shows that 50% of departments have GRPI's between 0.4 and 0.6 and GRPI makes no meaningful distinction among them. I doubt the validity of Griskey's conclusion and would fear its adoption. Means that are valid and helpful for characterizing a population are not necessarily useful or proper when applied individually to each unit of the population.

This is, properly, an emotional issue which pricks our departmental and thus our personal pride. We must compete and only one can be number one—for now.

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Sir:

We are ambivalent about prolonging the debate in your pages on the ranking of chemical engineering departments, since titers of feeling, eloquence, numerical data and pages therein are already outdistancing more fundamental contributions to your journal. We are the more ambivalent because we share Carberry's view, to which he himself shows only partial adherence, that no single criterion and no particular combination of criteria has unique appeal and each will produce different results. Nonetheless we consider Griskey's recent article on this subject in your pages to demonstrate laudable objectivity and appeal to common sense in its formulation of *one* criterion. We want briefly

to summarize a similar study we made last spring that produced similar but not identical results and then to offer some more general observations. Data from the last four Thesis Indexes of *Chemical Engineering Progress* and the last two ACS Directories of Graduate Research were used to calculate the average number of doctoral degrees per faculty member per year with the result shown in Table I.

The four-year averaging, approximately equal to a doctoral student's mean residence time, is desirable because many departments in these surveys produce only a few doctorates per year and are subject to fluctuating enrollments. Thus the "noise" of a single measurement channel in our study may be smoothed by a longer sample time so that the results may be of comparable quality to Griskey's shorter sample of multiple channels.

Gill, defending his study against Carberry's criticism, refers to the correlation among rankings. However, a close examination of the rankings which include the two American Council of Education ratings, the Gill and Griskey rankings and our own statistics showed that there was, in fact, very little correlation among them. The lack of correlation is most obvious on a plot using Griskey's results as the abscissa and the different ratings as the ordinate.

In offering our data set we suggest that each of these studies, ours included, establishes only a local truth and any implied catholicism must be regarded warily. Our survey was done to show our dean that our doctoral program was cost effective relative to those of other chemical engineering programs. Surveys that measure something close to a well-defined concept of goodness may have merit, but opinions report the feelings of those who opine, "efficiencies" measure against their own precise but narrow standard, and complex truth does not come cheap.

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Table I

The following table was taken from a recent survey concerning the productivity of doctoral degrees from various chemical engineering schools in both US and Canada. A total of 73 schools was included with data taken from Thesis Index, CEP and ACS Directory of Graduate Research. The first 10 schools are listed below:

University	Average number of doctoral degrees granted per faculty per year (1971-75)
1 Stanford	0.979
2 UC Berkeley	0.913
3 Princeton	0.904
4 UCLA	0.863
5 Wisconsin	0.852
6 Northwestern	0.727
7 Columbia	0.694
8 Carnegie Mellon	0.683
9 Notre Dame	0.643
10 Colorado School of Mines	0.608
Average from 73 schools = 0.431 Standard deviation = 0.195	