THE RANKING OF DEPARTMENTS: IS PRODUCTIVITY THE SAME AS QUALITY?

In this issue *CEE* presents the second paper by Professor Richard Griskey on the ranking of chemical engineering departments by means of an average productivity index. We suspect it will be an even more controversial paper than his previous article which was published in *CEE* in the Summer, 1976, issue. The editor of *CEE* and many of the reviewers of this paper do not agree with Professor Griskey's system of ranking departments or with the method used to obtain the results. However, rather than reject the paper on this basis, it was felt to be preferable to publish the paper along with the critical comments of its reviewers in order that our readers would have the chance to draw their own conclusions. *CEE* invites further comment on this important matter.

As in the previous paper, the criteria used by Professor Griskey were 1) refereed papers published during the past year per faculty member, 2) dollars extramural research funds expended during the past year per faculty member, 3) number of masters degrees awarded during the past year per faculty member, and 4) number of doctoral degrees awarded during the past year per faculty member.

One criticism of this paper is that the data used to obtain the indices are not reliable because they are based on only one year rather than on an average over several years and are thus subject to large fluctuations. Furthermore, much of the information came from replies to questionnaires which may be completed with varying degrees of accuracy by busy departmental chairmen and their secretaries.

Another criticism is that the results are not meaningful. But Professor Griskey argues that his criteria are meaningful because 1) they are normalized in terms of the number of faculty and 2) they can be quantitatively measured and are therefore "objective." But while normalization on the basis of the number of faculty members may seem reasonable as a measure of productivity, this may not be the case if one is trying to measure quality. For this implies that departmental size offers no advantages to the student or professor. Actually, some students could benefit from a large department because the larger faculty could provide them with more opportunities to select course work and research in their area of interest and some may profit from the atmosphere of a small department. So it is basically a subjective opinion as to whether quality can be measured by a normalized index.

Furthermore, Professor Griskey's rankings are not truly objective because they are based upon the subjective opinions that the four indices he uses actually measure quality (either individually or collectively), that they alone should be used, and that each of them should have equal weight.

But do Griskey's quantitative criteria really measure quality?

As one reviewer points out, his productivity index has shown a correlation coefficient of 0.5 to 0.73 with large sample peer evaluations (such as used in the American Council on Education reports). Thus, his method "accounts for only 25 to 50 per cent of the quality variations indicated . . ." and his index fails to include some variables which many educators consider important.

Another of our reviewers, whose department ranked high, is even more emphatic. He says that if he were to "push for a substantial increase in any or all of Griskey's categories next year . . ." he would "necessarily *lower* the quality of graduate education" in his department. "The faculty" he says, "would divert more time away from students and into dealing with government agencies and would have less time to spend on *each* student because of the higher enrollments re-

quired to produce more degrees and because of the greater time they would need to spend "writing papers they shouldn't have" to get more publications.

As he points out, "simply counting degrees says nothing about the quality of the degree or the worth of the educational experience to the student." In fact, contrary to traditional concepts of educational quality, Professor Griskey has made a *high* student-faculty ratio a desirable goal, rather than a low one. Such emphasis on productivity is thus somewhat like ranking all composers (whether classical, country or rock) on the basis of their annual output. Or, on a more down-to-earth level, it is like ranking the nation's restaurants on the basis of the number of hamburgers they produce per employee per year. Both the quality of composers and the quality of restaurants are matters that are much too subjective and too complex to be determined by productivity indices, no matter how accurate the data.

Of course, the above comment is not meant to state that a *low* average productivity index should be the goal of every department either. Instead, each department and each university must have some latitude in setting its *own* goals. Rankings such as those of Professor Griskey's tend to promote conformity, as some departments, in striving for a higher ranking, might tend to lose sight of their own unique mission. As Professor King points out, "All departments should not have similar goals and variety should be encouraged."

The editor feels that the ultimate goal of a department should be to serve society in its own unique way rather than to rank high on someone's list. For some departments, this may very well involve providing the largest possible number of students with graduate degrees; for others it may instead involve providing a small number of students with what it feels is a quality education. For some it may involve doing currently-fundable research; for others, it may involve doing exploratory or pioneering research for which extramural funding may not be available. For some departments, a large undergraduate program may be desirable to serve the needs of the citizens of the state government that supports it and to provide justification for a large faculty; for others it may be better to have some faculty who primarily do undergraduate teaching and others who primarily do research; for still others it may be desirable that they all do research. Each department and each situation in time and space is different and it is detrimental to the ideal of service to society that, through such a system of rankings, departments are tacitly encouraged to produce more Ph.D.s of dubious ability, and their faculties are driven to write more papers of questionable value, and to seek more contracts to do research of little long-term significance—all in a vain drive for high institutional rank and prestige.

In essence, the Griskey set of rankings not only stimulates the setting of false goals but also implies that a complex, multidimensional and subjective matter, educational quality, can be reduced to a single number. That does not work when dealing with restaurants and hamburgers, and it certainly does not work when dealing with departments and human beings. □ **RWF**

RANKING ChE DEPARTMENTS IN TERMS OF PRODUCTIVITY INDICES

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THE RANKING OR ordering of chemical engineering departments is an important aspect of information for those in industry, government, and academia. In an earlier paper [1] a method of attempting to do this in an objective fashion was presented. The method involving statistical data published for four indices of performance was used to generate an overall index of performance. In contrast to earlier studies the ranking reflected overall graduate and research productivity and not just doctoral program effectiveness. The four indices of performance were: 1) masters and 2) doctoral degrees awarded per faculty member per year, 3) thousands of dollars of extramural research funds expended per faculty member per year and 4) refereed publications per faculty