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Currency in Subject Matter

Of some 300,000 scientists and engineers employed in American colleges and universities, approximately two thirds teach undergraduates. The vast majority teach in nonresearch university settings such as the community and junior colleges and many of the former state teachers colleges. Even in universities offering advanced degrees, a number of faculty teach undergraduate courses exclusively. Although there is nothing startling or new about this pattern, there is emerging concern about this group of faculty: How are they to maintain currency in disciplinary (and in many cases interdisciplinary) subject matter? The problem is increasingly recognized by leaders in professional organizations of scientists and educators; executives of major private and public foundations; leaders in academic science, government agencies, and industry and business; and persons knowledgeable about needs for faculty development throughout the nation.

This state of potential stultification of faculty results from a combination of factors, some internal to institutions of higher education and others developed outside them. Budget cutbacks resulting from declining enrollments and loss of confidence in the ability of higher education to deliver are restricting already tight sabbatical leave and professional travel opportunities. Increased percentages of tenured faculty coupled with the pending extension of the retirement age and the leveling of retrenchment of faculty size will minimize the infusion of new talent and produce an aging, and hence more expensive, professoriat over the next decade. Exacerbating these limiting factors are the erosional effects of nearly double-digit inflation. Under the circumstances, no significant initiatives addressing the subject matter needs of faculty will be forthcoming from the collegiate sector. All this while science continues to advance, sometimes explosively.

College faculty will continue, nonetheless, to educate and train the nation's next generation of scientists and engineers. It is thus in its own best interest that the federal government ensure a continuing high level of subject matter currency. The present response is far from adequate. For example, the college faculty-oriented programs of the National Science Foundation involve only about 3200 faculty per year. Of these, some 3100 participate in the Chautauqua Short Courses Program. Another 100 benefit from the Science Faculty Development Program, a fellowship program allowing up to 12 months of study but averaging about 9 months. The Chautauqua program operates on an annual budget of slightly less than $1 million and thus reaches its audience at an extremely low cost per person. By contrast, the Science Faculty Development Program, operating on a budget of about $2 million, reached only 119 individuals in fiscal year 1977, 127 in 1978, and 84 in 1979 (the smaller number in 1979 reflects, in part, longer tenures and upward shifts in the average salary of the recipients). Quality-oriented and excellent as it has been for the small number of recipients, the impact of this program in the fast moving world of science is woefully inadequate.

The National Science Foundation is considering ways to complement the existing faculty development programs in order to reach substantially greater numbers of college faculty. But the problem of maintaining currency and vitality among the nation's college and university science teachers is too massive to leave to one poorly financed activity by a single federal agency. The matter is of sufficient importance to warrant the attention of state governments, industry, and the imaginative and creative responses of a variety of academic and professional organizations. Perhaps most important are the professors themselves. While they cannot be expected to bear the entire burden for initiatives in self-renewal, their positions require that they make special efforts to maintain currency.—EDWARD J. KORMONDY, *Provost, University of Southern Maine, Portland 04103*