

Dollars Are Not an Output

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What has happened to academic Bioengineers? Faculty productivity used to be measured as some combination of teaching skills, professional service, and research output, but the system has been perverted by an inordinate emphasis on the number and amounts of outside money brought in. At one time, it wasn't the total direct and indirect costs that were of importance, it was the source of the funds, and whether the grant was from a prestigious or very competitive agency. At one time, we could afford to spend some time developing and improving our classes, because, although we were never given as much credit for teaching as we thought we should get, there was a chance that someone on the tenure committee thought that teaching was important for a neophyte faculty member to do well. And serving as committee members, officers, or program chairs for our professional societies was looked upon very strongly by our peers and superiors at one time.

It now seems that dollars snagged is the figure of merit, not just for individual faculty members, but for whole universities. Our President and Provost, when giving speeches bragging up our University, first declare the amounts of money brought in this year, or this decade, or this other period of time. Many times, they don't even get to a second declaration. There is competition among research universities, and the winner is the one with the most bucks.

Gone, it seems, are the days when Presidents bragged about fundamental research breakthroughs, grand technological advances, books written, students educated, peer-reviewed papers written, new pedagogic paradigms developed, unusual services performed, or mentoring successfully accomplished. It is now clear that the way to the top is through dollars ensnared.

This change in emphasis has given academia a new view of itself. It now justifies its lofty efforts as generators of wealth. It used to be the paragon of knowledge. Our students are now looked upon as future wealthy alumni who can bequeath fortunes to the University. It used to be that we were educating them to serve humanity.

President Dwight D. Eisenhower once warned that scientists could become prisoners of government funding, with contracts becoming a virtual substitute for intellectual curiosity. That day has arrived. The research work that gets done is the work that the government is willing to pay for. Anything without associated governmental dollars is ignored. At least it seems that way.

This has had profound effects on our profession and on those newly entering academia. The effect on the profession is the tendency to drive research towards reductionism, where fundamental research is given priority over applied research. This has turned

engineering research decidedly toward scientific research, and made the two often indistinguishable.

In order for an applicant to fill a new faculty position, it has now become commonplace that post-doctoral experiences are necessary, and the more the better. It used to be unusual for a PhD engineer to have post-doctoral experiences when they joined a faculty. The reason for the change is this: PhD candidates used to be the ones determining the topics and methods used in their doctoral researches. Advisors were there to guide and suggest, but the major decisions were made by the PhD candidate him-, or her-self. There was a learning process involved in this, and the student developed mature judgment that allowed him or her to be qualified to develop a new research program immediately after the dissertation was completed.

Nowadays, PhD candidates are hired as supertechnicians to carry out the work promised on the grants for which they were recruited. They have little to say about the broad aspects of their research, and, as such, are not given the opportunity to develop the skills needed to initiate new research projects. They can only develop these skills as post-docs.

Course grade inflation has been seen to be occurring in the extreme since dollars snagged have become so important in the tenure process. There is a simple explanation for this. An assistant professor cannot take a lot of time away from proposal writing to spend with his or her courses. Students expect an education, but they are satisfied by good grades. So, it is a lot simpler to give a lot of high grades than to answer students who complain about either the course or the grade that they got. All of this is because time must be spent snagging dollars.

And, if we turn our attention to the proposal writing process itself, how many of us can expect our proposals to be funded upon the first submission? None? Thus, a lot of time writing proposals is spent revising past submissions to satisfy comments of reviewers who may or may not have given quality reviews. There is not much creativity or inspiration involved in revising a proposal. This turns into drudge work. Talk about the dulling of the faculty mind!

There is no easy solution to this problem. Perhaps we ought to begin to expect that faculty publish papers and educate students if they are lucky enough to receive outside funds.