October 14, 2009 COPY COPY

TO: Gov. J. M. Granholm, Lt. Gov. J.D. Cherry, Hon. M. Bishop, Hon. M. Prusi, Hon. A. Dillon, Hon. K. Elsenheimer, Hon. T. Melton, Hon. W. Kuipers

FROM: Dr. Madhukar Vable, ME-EM Department, Michigan Technological University, Houghton, Michigan

RE: Return of Michigan Association Governing Board (MAGB) of State University award

It is with profound regret that I am returning the Michigan Association Governing Board (MAGB) of State University award[1] that you honored me with in 1999. I have also returned the Michigan Technological University (MTU) Distinguished Teaching award to the University President Dr. Mroz and resigned from MTU Academy of Teaching Excellence. In my letter to President Mroz and the MTU Board of Control (letter and documents attached) I describe my concern about undergraduate education, unfunded scholarship, and the evolving culture specific to MTU. Public university leaders are intelligent people who work diligently for the well being of their institutions. Nevertheless, their decisions are making the synergistic activities of education and scholarship into competing activities for faculty time and thus damaging both. More money by the State can give temporary relief but will do little to fix the underlying problem. In this letter I elaborate the reason for returning my MAGB award and draw your attention to the underlying problem and propose a solution.

Student enrollment, hence tuition money, is the responsibility of the university administration. Money for research is the responsibility of a faculty member. The State's support of education is very egalitarian: Subsidizing education for all its citizens. Federal support of research is very elitist: Fund the ideas that are perceived best by the peers. The politics of money requires that the administration lobby and be in the good graces of the State Legislators while a faculty member must lobby and be in good graces of fellow researchers in the field. Excellence in teaching does not affect the tuition revenues in the short term while excellence in research has a significant impact on proposals that are funded by the federal government and private companies. Tuition money adds to the general fund used in running the university while research draws upon it because proposal funds seldom cover the entire cost of research activity. Tuition money is dispersed through the university's vertical hiearchical structure of the administration while research money flows through the horizontal structure of research groups, institutes, and centers that have little to do with undergraduate education. The difference in responsibility how money for research and education is raised and spent is the primary cause for the deteriorating environment for scholarship and undergraduate education (lamented in reports, news, and books on a regular basis) in our universities.

There are two important types of education that takes place at our universities. One is academic, the other is the growth of our children away from the protective umbrella of their parents. Universities spent lot of money for the environment of non-academic education: smaller club-med dorms and dining facilities; more counselors to help the students with the stress of academia and growing up; more advisors to navigate myriad of problems at the university; etc. The tremendous growth in administration for the non-academic education is one factor for rising college costs in excess of inflation. On the academic side, a teaching model is being created to reduce demands on tenured faculty time by undergraduate students so they can do funded research. Large lectures of foundation courses[2] followed by tutorials conducted by graduate students; learning centers staffed by students to reduce traffic to faculty offices[3] by students seeking help; hiring of contingent faculty[4] to teach the lower division courses are some of the cost cutting measures. These cost cutting measures are in effect transferring resources from undergraduate education to finance funded research and is yet another factor in the rising college costs in excess of inflation.

Kids from rich families can get quality education at small expensive schools. Our brightest kids can either get scholarship to these schools or have the capabilities to survive the evolving teaching models in our research universities.

1. The original plague is sent to Honorable A. Dillon. Copies of the award are attached.

2. Science, math, humanities, economics, basic engineering courses are some of the foundation courses on which degree programs are constructed and are the courses that provide students with the wherewithal to be self-learners, a much needed ability in this fast changing world.

3. This teaching-learning model is increasingly transferring the responsibility of teaching by the faculty on to learning by the students. Smart students, particularly in those universities that can draw upon nation's best students, can survive this teaching model. But in public universities with a greater spectrum of background and preparation of students this teaching model cause high frustration in students. It is this frustration that the university hope to overcome by expenditure on the non-academic education as it is considered a cheaper alternative than putting a scholar-teacher in smaller classes.

4. Practicing professor and research professor are two new categories of professoriate. The practicing professor is a teacher on renewable contract hired primarily to teach the lower division courses and is not expected to do research. Research professor is a researcher on renewable contract whose salary must be paid from a research grant and is not expected to teach undergraduates. This vocationalism of teaching and research is a testimony that the synergy of scholarship and education is no longer considered important for undergraduate education.

But if our desire is to provide opportunity for quality education to all our kids then we have to address the economic forces that are putting scholars and teachers on increasingly divergent paths.

Changing how we fund research would require addressing the problem at the federal level and will get mired in national politics. But as State Leaders you have the power to ensure that the teaching dollar gets the same respect as the research dollar. Universities have an established accounting system in which *each* research project of a faculty member is tracked and budgeted. Demand that the same accounting model be used to cost each course (see Appendix B1 for an example) the faculty member teaches, and use this information to obtain the average cost of each degree awarded by the University. The list price of each degree can also be computed based on tuitions and fees. The difference between the list price and the actual cost is the value of the university brand of education. Demand that all of this be made public information and the students and their parents be provided with the actual cost and the list price of each degree in the college application package.

The above described simple proposal will accomplish several things. First, it will put public pressure on universities to reduce the difference between the list price and the actual cost of a degree and thus moderate the increases in tuition. Second, it will put a back stop on transfer of resources from undergraduate education to finance funded research. Third, it will bring better parity between the teacher and the researcher in terms of revenue generated for the university, and thus counter the devolving culture that is hurting scholarship and education as described in my letter to MTU President Mroz and the Board of Control. Fourth, it will provide you with a more accurate cost of *academic* education in each university, valuable information in making decisions on education and research policies.

Certainly there are complexities arising from different teaching formats. But these complexities are no greater than those in research projects for which the university makes accommodation on case-by-case basis. The State auditor and the University can arrive upon an accounting standard for each *course-type*[5] which is relatively invariant for all public universities, thus providing comparative information to students, parents, educators, and legislators.

In this global economy the generation of knowledge is not enough to ensure the well being of our nation's citizens. The new knowledge gets rapidly disseminated and understood by the smart and educated people around the world. The advantage our nation has over the rest of the world is that we have the resources to ensure that the new knowledge is transferred not just to the smartest but to any citizen who is prepared to apply themselves to learn. The diversity of aspirations in our citizenry and our open capitalistic society will ensure that the new knowledge will find new applications that will power our new economy. This advantage can be realized only if our universities use committed scholarly-teachers to teach a modern curriculum using contemporary books. Unfortunately, the culture in our universities in response to the way we fund education and research is placing lopsided emphasis on generation of knowledge over synthesis[6] (necessary for contemporary books and modern curriculum) and teaching of knowledge, particularly to our undergraduates. I have made to you a proposal that will partially address the problem.

The MAGB award with which you honored is a symbol that excellence in teaching is valued in Michigan public Universities and lays a responsibility on the award winners to see this symbol is not tarnished. Unfortunately and unwittingly the MAGB award is becoming part of a facade that universities are using to hide the fact that education, the primary function of universities, is of lesser value than the secondary function of research. I am returning my award to you so that you will refurbish the tarnished image of the award with policies that makes education as important as scholarship in our public universities.

5. Lecture courses, laboratory courses, field courses, study abroad courses, etc.
6. My department Chair considers book writing on par with external service and not scholarship of synthesis (see Appendix B2).

Appendix B1: Example calculation of cost of a course

The example below calculates the cost of a 3 credit engineering course with 44 students taught by a faculty with an academic year (9 months) salary of $80,000 using my university's current fringe benefit of 42.6% and an indirect cost of 52%. It presupposes that a faculty member teaches 8 courses per year. The 8 courses per year of 44 undergraduate students per course is considered by my department Chair as full teaching obligation of a faculty who is doing no research or service (see Appendix A1 in the letter to MTU President and Board of Control). Some refinements and complexities to the model are discussed later. The State auditors and the Universities can arrive upon the appropriate model that should be used for each course and this can be standardized across the public universities.

1	Faculty Salary	$80,000	
2	Direct cost per course for teaching 8 courses per year	$10,000	
3	Fringe Benefit (42.6%)	$4260	
4	Total direct cost	$14,260	
5	Indirect cost (52%)	$7,415	
6	Total cost incurred by the university for the course	$21,675	
7	Cost to the university per student in a class of 44		**$493**
8	Average in state tuition and fees for a 3 credit engineering undergraduate course[a].	$1301	
9	University education brand value for the course for a in state student.		**$808**
10	Average out of state tuition and fees for a 3 credit engineering undergraduate course[a].	$2064	
11	University education brand value for the course for out of state student.		**$1571**

a. Used the information posted for undergraduate expenses on university web page: http://www.mtu.edu/finaid/understanding/cost/

Some Complexities and Refinements

1. Universities are collecting information about the percentage effort towards teaching, research, and service for calculating the research expenditure for National Science Foundation as elaborated in Appendix B2 and B3. Let us assume a faculty member puts 40% for teaching effort and teaches 4 courses per year. Then the direct cost for a salary of $80,000 would be: $80,000 x 0.4 /4 = $8,000 per course, resulting in the cost to the university for the 3 credit course of $394.
2. If a course uses Graduate Teaching Assistants (GTA) in addition to a faculty member, then the salary of the GTA with their fringe benefit rate could be incorporated in calculating the average cost of the course the university incurs to teach a student.
3. The indirect cost percentage used above is the one used for research. It would be better to have an indirect cost percentage for *academic* education.

Appendix B2

The following e-mail explains how university collects data of the effort a faculty member towards education, funded research, and service.

From: “William W. Predebon” <wwpredeb@mtu.edu>
To: mefac@mtu.edu
Sent: Thursday, September 24, 2009 10:46:32 AM GMT -05:00 US/Canada Eastern
Subject: Important Information Requested

Each year we are asked to update the attached faculty workload information (don't fill this out yet). For those faculty who have submitted one in the past Kathy will send what was submitted last year for your information,. If we do not receive any changes by the date provided by Kathy we will assume the percentages are to remain the same.

For faculty who joined us this year Kathy will send a blank one for you to fill out.

For the new faculty I will briefly explain the reason for the request and how it is used. Each year NSF requests total research expenditures by universities which it complies and reports in a national publication. NSF defines total research expenditures as external research expenditures from contracts and grants and funds spent by universities on research, which is defined as internal research expenditures. Internal research expenditures according to NSF includes the salary corresponding to the percent of faculty time spent on research. This is why and how this information is used.

By the way our FY2007 ranking by NSF in research expenditures ($11.512 M) is based on total research expenditures (in our case it also includes ME-related KRC research expenditures).

Thank you,

Bill
--
William (Bill) W. Predebon, PhD

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Appendix B3

This is the survey form used in collecting information about distribution of faculty effort. Note 4 shows that scholarship of book writing is viewed on par with external service.

Department of Mechanical Engineering-Engineering Mechanics

AY 2009-2010

Percent time spent on:

Name		Undegrad and Grad Teaching	Grad Advising and Research	University Service	External Activities	Total (must = 100)
	(actual)					0
	(desired)					0

Notes:

1) Estimate the actual time you spend on each of these activities (actual).
2) Indicate the ideal time you would like to spend on each of these activities (desired).
3) Undergraduate and GraduateTeaching should include courses, labs, senior design, and enterprise.
4) External Activities should include, text-book writing, and external service in professional societies/organizations/government (which includes reviewer for journals, panels).

STATE OF MICHIGAN

SPECIAL TRIBUTE

To

COMMEMORATING THE ANNUAL AWARDS CONVOCATION OF THE MICHIGAN ASSOCIATION OF GOVERNING BOARDS OF STATE UNIVERSITIES & OFFERING TRIBUTE TO FACULTY & STAFF RECEIVING THESE AWARDS

WHEREAS, It is with the greatest pleasure that the Senators and Representatives of the State of Michigan commemorate the Eighteenth Annual Awards Convocation of the Michigan Association of Governing Boards of State Universities on April 6, 1999 at the Kellogg Center on the campus of Michigan State University. This awards ceremony is held to recognize two distinguished faculty members and two outstanding students from each of Michigan's public universities for the excellence of their work. We are proud indeed to extend praise and congratulations to these award recipients; and

WHEREAS, Our public universities here in Michigan offer students an opportunity to obtain an excellent education, as many of the dedicated teachers, staff, and graduates of those highly regarded institutions of advanced learning can attest. We can be grateful that there is the commitment to knowledge on the part of Michigan citizens to support our universities so that future generations of Michigan children find the advanced education they need here in our Great Lakes State; and

WHEREAS, Universities are not only teaching institutions, but places where faculty, staff and students conduct highly significant research. Many times, the most recent knowledge on a subject or in a field is being developed at a university like those here in Michigan, and we are appreciative that members of our distinguished universities may come up with more important discoveries that could have profound and positive influences on the course of human history. It is most appropriate that we recognize and support the key roles of teaching, learning and research in the lives and educations of Michigan citizens as they prepare for there futures in the 21st Century; now, therefore, be it

RECOGNIZED IN SIGNATURE BY MEMBERS OF THE MICHIGAN STATE LEGISLATURE. That the Eighteenth Annual Awards Convocation of the Michigan Association of Governing Boards of State Universities be hereby commemorated, and an accolade of praise and tribute be extended to the recipients of these awards, and be it further

PLEDGED, that a copy of this resolution be transmitted to the coordinators of this convocation and to the award recipients as evidence of the highest esteem of the following signatories and of the State of Michigan:

The Ninetieth Legislature
At Lansing
March 15, 1999