

## **Questions about Research and Other Matters from the Citizens League Higher Education Study Committee (from Rondi Erickson)**

*Response prepared by Peter Zetterberg, University of Minnesota, June 2004*

**1. Does the U have working definitions of basic and applied research that we should know/use? (I personally see it as a continuum, but does the U have marker points along the continuum.) Is there a policy decision on the balance between publish and patent? Is there a U policy on industry funded applied research?**

There is no sharp line that defines the difference between basic research and applied research. Most of the research conducted at research universities is basic research, although faculty members at research universities certainly do conduct applied research (e.g., designing vaccines for swine and poultry diseases, inventing medical devices, and so forth). Nearly all research funding from federal agencies, especially NSF and NIH, is for basic research.

Applying for a patent does not prevent anyone from publishing the results of research. It is a question of timing. If a patent is a possibility, then publication is typically delayed until patent rights are secured.

There is no policy on industry funded applied research. As a matter of policy, however, the University does not engage in secret research or ever agree to keep the results of research secret or private. Industrial sponsors understand this, and it is not a problem. Their rights can be protected in other ways, if they choose.

**2. How should the committee look at research rankings? There is reasonable consensus that having a "world class" research institution is important to the state. Which areas of the U programs are well ranked? Which ranking systems are the most valid? Does the U identify areas of research at the U by whether they are ascending, holding, or declining in ranking? One interesting suggestion is to look at GREs of applicants who have US undergraduate degrees and compare with selected competitor institutions.**

**If the committee accepts the public good argument of having a leading research institution in the State, and if we look hard at the funding challenges for all schools, and if we consider our being a relatively small population state, how do we make sure we can keep a research institution that ranks high enough to matter? What do we have to do to compete well with Michigan, Berkeley, UCLA, UWash Seattle, Research Triangle NC, Harvard, Princeton, Yale, etc.?**

**If MN can't compete with the best, what is the role of a research institution in MN?**

According to the most recent information available from the National Science Foundation, the University of Minnesota is responsible for 98 percent of the research and development work that is done in higher education institutions in Minnesota. It ranks:

- 7th among U.S. public research universities in research expenditures
- 10th among all U.S. research universities in research expenditures
- 16th in terms of federal dollars awarded among all U.S. research universities

The only comprehensive ranking of research University's is done by the University of Florida. According to the most recent study (2003), the University of Minnesota ranks among the nation's top 6 public research universities, slightly lower than UC, Berkeley, but on a par with Michigan, Wisconsin, UCLA, and Washington. See: <http://thecenter.ufl.edu/research2003.pdf>

Rankings of some graduate programs are conducted every 10 years or so by the National Research Council. These were last conducted in 1993 and published in 1995. There are plans to redo them, but there is controversy over the methodology to be used and the programs to be included, and the new study keeps getting postponed. The old rankings are included in the University Plan and Performance Report, which the committee already has.

In the past the NRC rankings have included only the arts and sciences and engineering. As such they exclude a large share of the University's programs (e.g., law, agriculture, education, the health sciences, etc.).

The size of the state does not matter in how well the University of Minnesota is ranked, since Minnesota supports only one major research university, as also does Wisconsin, a state of similar size. Iowa, a much smaller state, supports two, while California, a much bigger state, supports 10 UC campuses.

The University of Minnesota already does compete successfully with the nation's best research universities. For additional information about the quality of specific programs, the committee is advised to meet individually with the deans of Twin Cities colleges.

**3. Assuming the two most important pieces of being and remaining "world class" are holding and attracting faculty and having the labs/infrastructure they need, how is the U assuring excellence of graduate education/research in this time of declining federal and state support? What recommendations could our committee make that would help?**

Federal support for research is not declining, except perhaps in agriculture. Funding for NIH and NSF has been increasing.

With regard to state funding, the biggest threat to the University is a simplistic "fund the student" policy that takes money from the University (and its research infrastructure and graduate programs) in order to fund financial aid for undergraduate students in other institutions. This policy is simplistic for two reasons.

First, it treats all institutions as though they were the same. The Twin Cities campus has very little in common with any other higher education institutions in the state.

Second, it assumes that the state's only higher education priority is funding low-income undergraduate students, regardless of the institution attended or the program of study. This is false.

Higher education in America provides two public goods.

1. First, it provides America with an educated citizenry and individuals with a wide variety of knowledge and skills: physicians, engineers, teachers, police officers, chefs, cosmetologists, etc. The economic status of the individuals with these skills as students is irrelevant to their future contributions to society.

2. Second, higher education has always been the ladder to success in America, especially for lower income families. It is why parents expect and hope that their children will be better educated than they were. It is the American Dream.

It is important that we do not confuse these public goods or sacrifice one for the other.

Those who argue that public subsidies for higher education should be directed only to lower income students in the form of need-based financial aid embrace the second public good, and ignore the first. They suggest that the public's only interest in higher education is assisting low income students. But clearly this is not the case.

- It matters to the public whether there is enough capacity in higher education for their children to go to college. Since World War II nearly all of the expansion of higher education has been provided by public institutions.
- It matters to the public whether there are enough physicians, engineers, teachers, police officers, chefs, cosmetologists, and so forth.
- It matters to the public whether private employers are able to hire the skilled employees they need in order to thrive and keep a state's economy strong.
- It matters to the public whether research universities, both public and private, keep America at the cutting edge. More than 50 percent of the basic research in America is performed by research universities, with public research universities playing the major role and with federal agencies such as the National Institutes of Health and the National Science Foundation providing most of the funding.

And because it does matter in so many ways, states subsidize public higher education. States also get a terrific return on their investment, even if viewed in only the most narrow of economic terms. Whatever public investment the federal government and state governments make in higher education is returned many times over in the form of the higher taxes paid by individuals with a higher education, not to mention the many other ways in which they are important to a state's economy and civic life.

And then there is the new knowledge and innovation that flows from the nation's public research universities.

#### **4. If the growing national trend toward having funding follow the student rather than go to the institutions prevails, how will this affect the U and its support of infrastructure for graduate education and research?**

Funding the student is not a growing national trend. What other state is actually pursuing such a strategy? The only example is Colorado, which has moved in this direction in a rather stringent way because the state's Tax Payers Bill of Rights (TABOR) threatens to zero out all state funding for higher education in Colorado in about five years or so. This is hardly the model any state would choose to follow. No other state is taking funding away from public institutions in order to increase state funding for financial aid.

One obvious effect of such a model is that tuition for all students in public institutions increases dramatically. Minnesota already has the 7th highest tuition for resident undergraduate students

and the 5th highest tuition for resident graduate students among the nation's flagship public institutions. Minnesota also already has the nation's 5th most generous state grant program in terms of need-based grant dollars per full-year equivalent undergraduate student. It might be fair to ask whether Minnesota has already moved too far in this direction.

How could Minnesota support graduate education and a research infrastructure at the University of Minnesota only by funding low income undergraduate students? It is not possible, and no state does this.

**5. If the suggestion that research funding be culled out separately for state funding, what are the positives and negatives?**

It is already the case that the state provides support to the University for activities other than instruction. It does this in three ways.

First there are the state special appropriations for agricultural research and the Extension Service, and a number of other programs.

Second, the appropriations bill always specifies that support is provided for activities other than instruction. For example, the appropriations bill for 2004-2005 biennium provided an appropriation for general operations and maintenance of \$483,917,000 in FY 2004 and 486,700,000 in FY 2005 and specified that of these amounts \$368,020,00 in FY 2004 and \$371,860,000 in FY 2005 was for instruction. The state intends that the additional amounts over and above instruction are for other purposes and activities.

Third, the state provides support for new buildings that it knows will be used mostly for research (including research by graduate students).

**6. How is the cost of infrastructure and faculty paid for now? What is the place of state investment in this?**

The state provides some funds for infrastructure (see above) and research sponsors provide about \$90 million per year in indirect costs.

The state funds about 25-30 percent of the University's payroll and 40-45 percent of faculty compensation. The University will not have the new figures reflecting the big drop in state funding for FY 2004 until July, 2004.

**7. On accountability and incentives, what should be measured for research? for graduate education? What incentives would be attractive? On accountability: GRE of applicants might be one piece, number of times research is cited another, maybe what % of fed funder budgets (NSF, NIH, etc.) come to the school/dept, maybe # of students who are NSF fellows? What should we be counting? Are the criteria used by US News the right ones?**

The University of Minnesota already does an annual University Plan and Accountability Report, which it submits to the legislature each year.

The legislature once tried tying funding to "measures" and backed away after just one year, when the University explained that it would not admit unqualified students or hire faculty members on the basis of gender simply to meet performance measures and avoid losing some

state funding. This is the problem with “pay for performance” measures. More often than not, no matter how well intentioned, they wind up compromising an institution’s quality rather than providing a true incentive for improvement, because they are very short term. Such bureaucratic accountability systems also impose a significant administrative burden and cost.

**8. A 1998 Citizens League report (A Competitive Place in the Quality Race) noted what they deemed a "lack of programmatic focus" with 165 different doctoral, masters and professional program. What does the U think of this assessment, and if they agree, what could the committee do to encourage hard choices?**

The state of Minnesota does not support a broader range of graduate and first professional programs than most other states. It is just that in Minnesota (and Wisconsin) they are all offered by a single campus, rather than two (e.g., Iowa and Iowa State, Michigan and Michigan State, Indiana and Purdue, Washington and Washington state, North Carolina and North Carolina State, etc.). Also, recently there has been some consolidation of graduate programs (e.g., smaller programs in the biological sciences have been combined into larger programs as part of the reorganization of the basic biological sciences). In addition, CLA has reorganized some of its small language departments into larger administrative units (e.g., Asian Languages and Literatures, Linguistics, English as a Second Language, and Slavic Languages and Literatures), reducing administrative costs, while maintaining instruction in less commonly taught languages that are only available from the Twin Cities campus.

**9. Most research institutions have a unified undergraduate school of arts and sciences. MN no longer does. Does this hurt us? Should we encourage return to this?**

Actually this is not true. Engineering is always separate, and although some campuses have large arts and sciences colleges, others break things out in a variety of different ways (e.g., a college of humanities and arts and a college of social sciences or a separate college of science or a free standing school of music). The Institute of Technology was established in 1935. There is nothing new or problematic about the organization of arts and sciences on the Twin Cities campus.

**10. What is the perspective on mission creep -- both between MN institutions (ie MnSCU and the privates providing graduate professional education, and maybe even internally within the U for example economics being both in CLA and Ag).**

The University is concerned about other public campuses getting into the doctoral degree business. Private institutions, of course, are free to do what they want. We do have some concern that some institutions may be using tuition revenue from undergraduate students (some of whom receive state grants) to subsidize cut-rate graduate programs (e.g., M.B.A. and M.Ed.).

Mission differentiation is extremely important, but it should not be confused with program duplication. In many instances, especially at the undergraduate level, duplication can ensure access at lower marginal cost compared to more students on a single campus. Duplication that meets student needs but that does not carry huge marginal costs should not be viewed as a problem (e.g., liberal arts programs). The state should worry instead about the huge costs of duplication of graduate programs, about duplication when there are big sunk costs (e.g., medicine, chemical engineering, neuroscience, veterinary medicine, etc.), and especially about safe guarding existing investments in research infrastructure.

**11. And the most important question: what questions have I not asked that I should have asked?**

Two things.

First, what problem(s) are you trying to solve?

Second, is there a broad framing question that guides the Citizens League's study, for example:

"What does Minnesota need to do to ensure that in the future it will be able to provide quality educational opportunities for students, meet employer needs, and support research and innovation at the University of Minnesota?"