PARTNERSHIPS FOR EMERGING RESEARCH INSTITUTIONS
Report of a Workshop (2009)

Strengthening the science and engineering enterprise is critical to ensuring that the United States remains globally competitive. Providing more opportunities for student participation in research at the university level can help achieve this goal, since research experience is known to be an extremely effective way to prepare students for graduate school and science and engineering careers. Constituting one-third of all U.S. institutions of higher education, emerging research institutions (ERIs)—
defined here as all master's colleges and universities, baccalaureate colleges, and tribal colleges according to the 2005 Carnegie Classification System—are crucial to maintaining the nation's technological competitiveness through innovation and workforce development. Unfortunately, research is not being used effectively to engage students at most ERIs. The reasons for this phenomenon were examined in a September 2007 National Academies workshop entitled "Partnerships for Emerging Research Institutions".

The workshop began by examining the impact of research experiences on students at ERIs. It then explored reasons why it is so difficult to cultivate a research climate in these institutions. Participants stated that teaching loads at ERIs are usually double or triple that of research universities, and many ERIs are limited in the administrative support they can offer their faculty. In addition, the faculty reward system does not compensate adequately for the burdens that ERI researchers must bear or for the full scope of their efforts. As a result, few ERI faculty pursue research, leaving most students without access to this key learning experience.

Workshop participants agreed that ERIs can contribute more significantly to innovative research, and most urged that these institutions play a more prominent role in sustaining the nation's technological competitiveness. Presenters suggested a number of approaches to overcome the barriers that ERIs face in building more robust research enterprises:

Faculty Time. The most obvious problem faced by ERI researchers is the lack of time to do research. ERI teaching loads are high, typically three to four courses per semester. Moreover, because these institutions try to maximize student access to courses, classes are often distributed across day and evenings and include both Monday-Wednesday-Friday and Tuesday-Thursday slots. This means that there are no blocks of uninterrupted time to perform research. Proposed solutions included: (1) consolidating many small classes into fewer large ones; (2) formulating a research project as an undergraduate class; (3) consolidating teaching schedules to provide time blocks for research; (4) providing "reassigned time" for new faculty so that they have more time for research; (5) collaborating to implement faculty sabbaticals at research universities; and (6) leveraging internal faculty development activities, such as proposal development groups and peer mentoring, to optimize the use of limited time available for research.

Targeted Investments. A number of presenters pointed out that administrators must be better informed about the value and cost of doing research. Realistic estimates of expenditures needed for research support personnel, materials, and equipment will help guide decisions about research investments. Developing a research enterprise is difficult and expensive, but good strategic planning and investment can optimize the results and minimize the liabilities. Presenters suggested that ERIs should consider reallocating internal resources to capitalize research start-ups where there is a high probability of a return on investment. Internal funding should support activities such as research initiation grants, summer salaries for young investigators, laboratory space, and travel. Also, establishing research niches and cultivating research experts can enhance competitiveness and attract quality faculty and students.

Institutional Resources. Many ERIs have very limited research support units with professional staff who can provide comprehensive services to faculty. Thus, faculty who undertake research must compensate for the lack of services on campus. Partnerships with other institutions and organizations for economies of scale, many participants agreed, can enable ERIs to provide services such as sponsored research administration, technology transfer, and grants management. Other options mentioned include initiatives for library subscriptions and faculty sabbaticals funded by state systems of higher education.

Faculty Reward System. To validate the commitment to teaching and research, several presenters urged ERIs to place greater emphasis on research in faculty evaluations and provide rewards for faculty-directed and undergraduate research. The reward system should include flexible tenure policy, start-up packages for new faculty, and returned overhead as a research incentive.

Administrative Leadership. A common theme was the need to stimulate internal collaboration to leverage resources and provide research opportunities for more students. In addition, administrators should encourage researchers to share their findings and promote more interdisciplinary activities. ERIs could develop "learning communities" especially for junior faculty where there is not a critical mass of disciplinary expertise in one department, thus helping young faculty members find the synergy needed to incubate and nurture innovative ideas.

Embracing the Research Culture. Many workshop participants urged ERIs to adopt principles regarding the scholarship of teaching and learning; for example, offering courses that empower students by imparting the knowledge and skills needed to conduct research and to successfully complete graduate programs.

Funding Sources. Finally, ERIs could appeal to state legislatures, federal agencies, and foundations for funding to propel them into more competitive enterprises. Most participants echoed the views of presenters encouraging federal agencies to provide grant programs to enable minority-serving institutions to develop the critical mass of research talent needed to support the nation's scientific and technological foundation.

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