“Brain Gain” Education Models Are Key to Nation’s Global Competitiveness

By Dr. Melvyn D. Schiavelli**

Groundbreaking ideas generated by innovative minds will influence the lives and livelihoods of generations of Americans, paying enormous dividends as our nation seeks to strengthen its ability to compete in the global economy.

The nation, however, will continue to pay a long-term economic price for failing to educate our youth, particularly those in underrepresented groups, to participate successfully in the 21st century economy.

Findings from the national study, *Tapping America’s Potential: The Education for Innovation Initiative*, indicate that in just four years, by 2010, if current trends continue, more than 90 percent of all scientists and engineers in the world will be living in Asia. Moreover, recent studies by the American Association for the Advancement of Science report that the U.S. science and engineering labor pool is getting older and that interest in these fields among younger people has waned. In order to keep that labor force strong and globally competitive, it is essential to recruit and cultivate future scientists and engineers into the pool of talent.

Employers in a global economy value college graduates that bring a combination of specialized technical aptitudes, adaptability, and business skills to the workforce. The solution is to motivate U.S. students and adults, using a variety of incentives, to study and enter science, technology, engineering and mathematics careers: the STEM disciplines. This will require new approaches to higher education and new thinking about traditional undergraduate degree programs.

We recognized this challenge in Central Pennsylvania and created a “brain gain” education model that can serve as an example for other states to follow.

The capital region of Harrisburg, Pennsylvania had many economic assets, but there were significant weaknesses in our economic portfolio—one being the lack of a four-year university focused on the production of technology-educated graduates needed to capitalize on our local information-technology opportunities. With too few technology-educated workers available, our region’s economic growth was depending too heavily on sectors with lower-paying jobs and dimmer long-term prospects. We were in danger of becoming what one business leader described as a “warehouse economy.” Other states face the same dilemma.

Our solution was to create Harrisburg University of Science and Technology, a private urban educational institution--co-locating a high school, comprehensive university, and business incubator--that provides the competencies that encourage the successful navigation of the STEM careers by all students. Deputy Secretary of the U.S. Department of Education Ray Simon lauded the idea as a “model for the rest of the nation.”

Members of regional industry are playing a role by developing our course curriculum and participating as corporate faculty and program advisory team members. In addition, we link every student with a business mentor upon enrollment and have a mandatory multi-year internship program. In the near future, Harrisburg University's SciTech Innovation Center will foster regional entrepreneurial ventures as well as attract new technology companies to the Central Pennsylvania Region.

Governor Edward G. Rendell noted that "twenty years from now" the University will be "viewed as the most important strategic economic development effort ever undertaken in Harrisburg." Harrisburg Mayor Stephen R. Reed has called our curriculum "critical to the nation and the region in meeting the demands of high skill jobs in the 21st Century."

In addition to graduating an estimated 3,200 students within the next decade, Harrisburg University expects to become a valuable economic development tool for not only the City of Harrisburg, but for the entire south central Pennsylvania region. Through its development, the University will create over 300 new positions at the campus and generate additional employment opportunities with other support businesses.

The engine of growth that fuels our national competitiveness is linked firmly to our ability to develop and educate the most competent and adaptable workforce. Other states can replicate our unique model.

If we expect future college graduates to become workers for high growth industries and to lead change across a series of emerging technology fields, then we must create new educational models aligned with technology-based economic development and innovation, thus creating a continuum of learning from high school to college to career.

**** Dr. Melvyn D. Schiavelli presently serves as the founding president of the Harrisburg University of Science and Technology in Pennsylvania. Harrisburg University's inaugural class of 113 finished its first year May 5. The Middle States Commission on Higher Education, the entity that rules on matters of college and university accreditation, approved The Harrisburg University as a candidate for accreditation on June 22, 2006.**