

Proclamation Luncheon, February 15, 2008
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First and foremost, I'd like to take a moment to thank the special people in my life. My children and grandson, who live in Minnesota, are with me in spirit today, although I confess that when considering a trip to Philadelphia this weekend, my son appeared much more excited about going ice-fishing in the wilderness of Lake Winebegosh.

All of us work in teams, contributing our skills and thriving on the energy that the group generates. Rowan University has strongly supported my efforts since my arrival in 2000, and I'm proud to have my colleagues with me today. I would like to acknowledge Don Farish, President of Rowan University, his wife, Maia, some of the Engineering team, and campus colleagues and friends who have joined us today. Thank you for your support and encouragement.

Engineering education is a passion of mine. A constant topic of discussion (among educators, policy makers and industry leaders) is the fear that the United States could fall behind other countries in educating the next generation of engineers and the resulting negative impact that would have on the American quality of life.

There seems to be little consensus on the number of graduates from various countries and much debate on what is counted in this number, but there can be no debate that rapidly developing countries such as India and China are seeing technological explosion. For the United States, this growth begs the question, "Will America still drive the technological revolution that fuels the future global economy?"

Some of the most influential leaders in academe, industry and government recently produced a report, "Rising Above the Gathering Storm," for the National Academies. They addressed this very issue and offered strategies to secure our nation's strength in the technology enterprise. The widely circulated report examines the globalization of technology and the possibility of the United States being left behind as other countries drive technological innovation and scientific discovery. It also delivers specific objectives to safeguard the current American leadership in technology and innovation.

There are other factors that we must consider as well. The National Center for Education Statistics projects the number of high-school graduates will reach an all-time high in 2009, but then begin to decline steadily the following year. While some states, such as California, Florida, and Texas, will see big increases in traditional-age students over the next 10 years, others — including Michigan, Ohio, and Pennsylvania — will face a drop in high-school graduates.

This will pose competitive challenges not only for educational institutions as a whole, but for the disciplines within higher education. Engineering is constantly tasked to attract the best and the brightest when our competition can provide career pathways that pay as well (or better) and are easier to pursue. The key to survival in this competition? I believe that we have to distinguish ourselves, be distinctly different. But most important, we have to be different in ways that students care about.

Now, more than ever, engineering educators have an opportunity to literally change the world.

We provide our students with the education and opportunities they need in order to maintain America's strength in engineering and technology. We must produce engineers with a solid skill set and an understanding of the global marketplace and their critically important place in it.

Engineers are problem solvers, creative thinkers who change the world. I am committed to the leadership role that engineering education across the nation must take in this "rising storm." Weathering this storm won't be easy. But innovators, with their entrepreneurial spirit and boundless creativity, are what have always set this nation apart, and this unique American attribute will carry us forward.

As an educator I look more closely at this complex challenge facing us and I'm reminded of a sobering prediction. Think of this:

- The top 10 jobs that will be in demand in 2010 didn't exist in 2004.
- That means that we have been preparing students for jobs that don't yet exist . . .
- They may be using technologies that haven't yet been invented . . .
- in order to solve problems we don't even know are problems yet.

It is our challenge to educate engineers to be the problem solvers tomorrow – and the day after. Engineers must have core technical competencies, but I believe the critical aspects of engineering education also include:

- Team skills – understanding yourself as a learner, understanding others, understanding your team
- Hands-on, experiential learning – active learning that allows us to readily translate theory and concepts to critical action.
- Multidisciplinary understanding and experiences (how do chemical and electrical engineers complement each other, how does an engineer relate to a human resources manager)
- A liberal education foundation (the ability to appreciate and converse on a range of subjects)
- A global perception – a much broader view
- Strong communication skills (including oral, written, and presentation)

Graduating engineers who have their core technical knowledge delivered in an active, hands-on environment, who know how to work on multidisciplinary teams, who have a global perception and communicate well – those engineers know they have an advantage and young students will be drawn to those programs.

There is another educational factor whose value I've seen over and over in my lifetime. That value is in a close relationship between industry and education and the opportunities that come with these relationships.

- Opportunities for students to experience real-world problems
- Opportunities for industry to advise educators – to inform us about business trends, future markets
- Opportunities for students to sharpen those critical thinking skills.
- Opportunities for students to truly understand the impact engineers can have on society

As we gather here today, it is apparent that you and your companies are committed to excellence in engineering and excellence in engineering education. I commend you for your support (or else urge you to become active). I ask you to interface with education, to reach out to your favorite institution or school (wherever it is), and to share your engineering experience.

As I look around, I am also aware that the activities that bring us together during Engineers Week are voluntary. We want to celebrate our profession. We want to encourage young students to advance their educations, to challenge themselves. But there is a high demand for our free time. Our children, our families, important people in our lives, our fun time, sports that we want to pursue, other activities -- they are all competing for what little free time we have available.

I think that our professional societies have been particularly hard hit by this time-crunch. As we move through this next year, one of my goals will be to strategize with the Engineers Week Council to find ways to make our professional interactions more efficient and more useful. We must continue to have vibrant professional linkages that attract tomorrow's engineers to our ranks.

It is a pleasure to join all of you today to begin the celebration of the Engineers Week in the Delaware Valley. I appreciate your support and recognition.

Thank you.