

## **AZIMASE Notes October 25, 2006 8:50 am**

### **Keynote Speaker – Dr. Crow**

In his speech, Dr. Michael Crow emphasized that the United States has become a nation of slackers and we are failing to grasp the consequences of this attitude and approach. He shared three concepts and asked the audience to consider the concepts relative to national competitiveness and to our math and science capabilities. The three concepts were:

#### **Creative destruction:**

This concept was first introduced by the economist Joseph A. Schumpeter. The idea is that everything we know today will be replaced. Dr. Crow pointed out that this process is only accelerating today.

#### **Paradigm shifts:**

Introduced by Thomas Kuhn, a paradigm shift is what occurs when scientists encounter anomalies that cannot be explained by the universally accepted paradigm. As a result, there is a scientific revolution and a new paradigm is formed. Dr. Crow stressed that science is the opposite of static and we are continually pushing the outer edges of science.

#### **Perpetual innovation:**

This is the idea, introduced by Don Kash, that human beings are innovators.

Dr. Crow then asked the question if these processes exist in our educational enterprise and stated the answer was no, that our education system remains static. He said that in the United States there is insufficient innovation adaptation at all levels, there is a disconnect between math and science – especially between scientists and teachers, and that we are in a state of denial. Dr. Crow said that the economy will be based on the three principals he outlined and that currently our nation is just coddling everyone through the education system. He said that the debate about math in schools, such as students needing to take calculus, is not about the subject in and of itself. Rather it is about creating people who are innovative at all levels; it is about building capacity which taking rigorous courses like calculus enable and encourage the skills to build one's capacity to be innovative.

Dr. Crow touched on what is taking place in China, stating that there they are compressing the gap that exists between what is being taught through education in math and science with where the researchers are as far as knowledge creation. While they are not yet pushing the envelope on new knowledge, they will at some point merge the gap and then that will create big trouble for the United States because we will have never before been in that type of position.

Regarding what ASU is doing, Dr. Crow said that we are expanding innovation through centers like CRESMET; we are aligning differently as evidenced by the creation of the Vice President for Education Partnerships office; and we are increasing our production of science, math and engineering students, which can be seen by the growth of schools at the Polytechnic campus. He also said that math teacher production is seriously lacking

and that there aren't commitments from other departments outside of education to produce teachers. The College of Education has not yet figured out the solution. Dr. Crow said that in an effort to help address the lack of math teachers being produced, he has asked Gene Garcia to move forward on an effort for people who want to become a math teachers to be able to come to ASU and take advantage of math tuition remission.

He stressed that every student can learn what we figure out how to teach. He called for no slacking, blowing up the way we teach, and for perpetual innovation at every level.

Notes by A. Burke