



WEDNESDAY COMMUNIQUÉ

November 11, 2015

Veterans Day: Today is Veterans Day. Let us honor them by remembering and acting on the words of John F. Kennedy: “As we express our gratitude, we must never forget that the highest appreciation is not to utter words, but to live by them.”

UNM Alumni Major Taona Enriquez was recognized during a Veterans Day ceremony outside of Scholes Hall this morning. She has been promoted to Lieutenant Colonel in the United States Air Force. She will take part in a ceremony in Washington D.C. on Nov. 17.

Real Education, STEM and non-STEM: In my recent communiqués, I have spoken of the benefits of a broad education, as insurance against an uncertain future and as fertile ground for creative and critical thinking. The same benefits can accrue from a rigorous program of study in a particular field. In fact, educators such as [Professor Steve Strogatz](#) apply mathematical and scientific concepts to daily situations as well as to societal and global problems. On the value of doubt (and the popular program “MythBusters”), he says, “At a time when ‘skepticism’ too often means rejecting any ideas one finds politically unpalatable, ‘MythBusters provides a compelling example of real scientific skepticism, the notion that nothing can be held true until it is confirmed by experimentation.’”

A measure of doubt helps us to be humble, but also helps us be right more often. Witness, for example, the [friendship paradox](#) and its application to disease control, or the idea of balanced networks in [human and international relations](#). Unwarranted certainty precludes more reliable methods of grounding beliefs; a reasonable doubt is the first step toward avoiding mistakes in thinking. A college education is a great opportunity to receive both the feedback from professors and peers that can lead one to doubt, and acquire the critical thinking skills necessary to refine beliefs, seek out new evidence, and avoid errors.

If You Only Have a Hammer: As a graduate student and a faculty member, I worked in a field known as Systems Theory. Systems appear in many fields and are useful abstractions to analyze and predict the behavior of interconnected components and parts. Synthetic systems are usually easier to model than natural or social systems – though in the words of the mathematician George Box “All models are wrong, but some are useful.”

Due to my background, I tend to think of the University as a system that can be modeled. Regardless of how one obtains the model (from basic principles, or big data, etc.), once a model is obtained, it will have the following components: inputs (such as students’ characteristics, funding streams, etc.), outputs (such as graduates and research output), internal states (the financial state, learning outcomes, and all possible information about everything at the university), and dynamics (how inputs become outputs). Some of the inputs are unknown and cannot be controlled (parents’ education) but others we may be able to manipulate (funding). Some outputs we can measure and monitor, and some we may be interested in keeping in a certain range (such as keeping the graduation rate above a certain level). Other outputs we can monitor but are harder to assess across the wide variety of fields in a university (the quality of faculty and student research, creative work, and public service).

I like to translate most problems into the language of systems theory because it helps me organize my thoughts in a general way, and allows me to predict future behaviors when the model captures the essential behavior of the real system. It also illustrates that outputs and behaviors are due to internal conditions, external stimuli, and the things

we do within the system – and that it is often only the latter that we can control. Therefore, it makes little sense to compare the outputs of two different universities, unless they are similar in their dynamics and their inputs.

Congratulations! A team from UNM, with students from the School of Architecture & Planning, Civil Engineering, and Construction Management, just won the Design-Build Institute of America (DBIA) 2015 National Design-Build Student Competition. Our team beat 31 teams from 26 universities, and is a testament to the work conducted by UNM students and their advisers across departments. The team was led by faculty coaches Kristina Yu (architecture), and Mark Russell (civil engineering), and included the following students: team captain John Clark, Alex Hamada, Mike Pace, Sam Rael, Michael Roseborough, and Annica Mosow.

Lobo Reading Experience: Sonia Nazario, the author of “Enrique’s Journey,” will be on campus this week for [several events](#), and I hope we can all make time to participate in some way. UNM’s [Lobo Reading Experience](#) was designed to be a common learning experience for the entire UNM community, and the value of this experience is directly related to our participation. “Enrique’s Journey” is about a boy who leaves Honduras in search of his mother, eleven years after she travels to the United States. The story touches on multiple recent events, as well as ongoing debates over topics such as immigration reform. If you have not already read the book, consider picking it up and attending the Immigration Advocacy Panel on Friday, Nov. 13 at 11 a.m. in Zimmerman Library, the Willard Room.

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