November 2, 2016

On the Use and Abuse of Data: My area of research is systems theory, where the basic problem is to decide how to measure, and how to control the parts of a system, usually using feedback. In general, the richer your measurements, and the more of them you have, the more information can be gleaned, and the easier it is to control the system. It is, of course, time-consuming and of diminishing benefit to continuously measure and evaluate at the expense of acting. On the other hand, simply discarding potential information that may be embedded in new measurements seems at best risky. Extremes on either end have pitfalls. They are either like the driver who never checks the gauges, and then runs out of gas, or the driver who focuses on the instrument panel without watching the road. Both cases end badly, unless the car is parked! And that is why I believe that decision-making at our university must include appropriate measurements and data, but not at the exclusion of context.

In 2010, the Air Force deputy chief of staff for intelligence, surveillance and reconnaissance said, "We're going to find ourselves in the not too distant future swimming in sensors and drowning in data." It was often assumed that collecting more data would lead to extracting more information, and thus also to better decisions. It may therefore seem paradoxical how the abundance of data has, in many ways, led to more confusion and division. The late senator Daniel Patrick Moynihan once stated that "you are entitled to your own opinion, but not to your own facts." Recent national and local discourse shows us, however, that our conflicts are not primarily disputes over facts (particularly in those cases where facts are conspicuously absent), but clashes between ideologies, divergent principles, and widely differing perceptions. The increasing amount of data, on its own, has not clarified the situation or generated agreement.

To further complicate the matter, the data does not necessarily lead you to the right conclusions on its own. It is possible to misuse or be seduced by data, and form conclusions such as those illustrated here. In one example, suicides by hanging, strangulation and suffocation correlates with the number of lawyers in North Carolina. Another famous example of such data misuse is the paper titled "Why Susie Sells Seashells by the Seashore: Implicit Egotism and Major Life Decisions," that claimed that your name affects your career choice. In fact, the paper claimed that if your name happened to be Dennis, you were more likely to become a Dentist.

There is, as it turns out, a statistical explanation for the phenomenon that led some to publish a peer-reviewed article that linked your career to your first name, and that is why it is not enough to base our decisions on data alone, without the benefit of critical (or analytical) thinking.

A Mathematician's Lament: You may disagree with Lockhart's view of mathematics education, but I cannot help but agree with his overall assessment that mathematics is closest to art. So here is to those who teach mathematics the way art teachers do (e.g. see proof by clementine), and those who continue to bridge the gap between the two cultures.

Weekly Dashboard Challenge: Last week we had the first of five "Dashboard Challenges." The question was: since the 2013-14 academic year, how much has the 4-year graduation rate improved, on a percentage basis? We received twenty-four correct answers to the challenge. Participants will be notified via email whether they were one of two to receive a LoboCash card. To find the answer and learn more about using the dashboards, you can follow along with Associate Provost Greg Heileman in this video.

The answer is that we have improved our four-year graduation rate by 37.34 percent over the past four years. This is computed by taking the difference in the four-year graduation rates between 2016-17 and 2012-13, which is 5.9 percentage points, and dividing it by the four-year graduation rate in 2012-13, i.e., (21.7 - 15.8)/15.8 = 37.34. Congratulations, this is an amazing achievement!

This week's challenge: According to dashboard.unm.edu, what majors, undergraduate and graduate, have the largest student population, and what is the demographic make-up of those groups (both gender and ethnic background)? If you send the correct answer to provost@unm.edu, you will be entered into a drawing for a $10 Lobo Cash card (accepted at these locations). You must submit your answer by 5 p.m. on Friday, Nov. 4.

Lobo Reading Experience: Beginning in 2011, the Lobo Reading Experience has been a part of the UNM undergraduate experience, and a shared reading and learning experience for the University community. Drs. Cristyn Elder and Katie Denton have accepted the honor of serving as co-chairs of the book selection committee for 2017-18, and that process is now underway. If you would like to offer recommendations for next year's book, please complete this survey.

The Lobo Reading Experience has grown year after year. More faculty are including the book in their courses, the book has been incorporated into New Student Orientation, and even the broader Albuquerque community has joined us for events and celebrations. Previous Lobo Reading Experience selections have included The Boy Who Harnessed the Wind, Garbology, and Enrique's Journey. The current selection for the 2016-17 academic year is A Cup of Water Under My Bed, a memoir that touches on a number of topical themes, such as immigration, race, language, and identity.

Chaouki Abdallah

Provost & Executive Vice President for Academic Affairs

A PDF version of this Communiqué is available on the Academic Affairs website. Your feedback and input are welcome at provost@unm.edu. Please also see the Provost's Blog.