



WEDNESDAY COMMUNIQUÉ

March 9, 2016

*It is not a dream of motor cars and high wages merely, but a dream of social order in which each man and each woman shall be able to attain to the fullest stature of which they are innately capable, and be recognized by others for what they are, regardless of the fortuitous circumstances of birth or position.*

—James Truslow Adams, coining the phrase "The American Dream" in his 1931 book "The Epic of America"

**Taking the Long View:** Education is one of the doors that many of us have journeyed through into the American dream. For the last few weeks, I have focused on the financial costs of higher education to society and to individuals. Today, I ask you to take a long-term view and to consider the ultimate value (economic and otherwise) of higher education. As I witness the immediate effects on universities and students in [Pennsylvania and Illinois](#), where the legislators and governors were not able to agree on a budget, I also fear the longer term damage done after budgets are eventually restored.

In New Mexico, the legislature and governor have agreed upon a budget that unfortunately is less than anticipated due to the revenues shortfall, with higher education taking particularly steep cuts. In the next few weeks, we will turn our collective attention to the problem of dealing with the ramifications of smaller state allocations to UNM. Other universities facing similar scenarios have combined budgets reallocations and cuts with new revenues. As an example, the [University of California, Berkeley](#), for the last 5 years, "has been reclassifying master's degrees from 'academic' to 'professional' in a little-noticed drive that lets the university charge more for the programs — doubling or tripling the price, in some cases — while officially maintaining a tuition freeze across the University of California"! As another example, Georgia Tech "has teamed up with Udacity and AT&T to offer the first online Master of Science in Computer Science from an accredited university that students can earn exclusively through the 'massive online' format and for about \$7,000." They currently have about 3,000 students from about 80 countries, and will ultimately have about 10,000 students. These and similar programs at flagship research universities point to the need to examine our revenue and cost model in order to make immediate and long-term adjustments.

And, of course, should you like to emulate someone who took the *really* long view, you may take comfort in what Michelangelo endured upon completion of the Sistine Chapel paintings, which debuted in the mid-1500s. It was, to put it mildly, a [public relations nightmare](#) and took a long time before the ceiling was universally acknowledged as the masterpiece we admire today. As we react to our own short-term adversity, our focus must be on making the right long-term decisions regarding budget cuts and new revenues, with the aim of sustaining ourselves as a true flagship research university in the future.

**Computational Thinking:** As we engage in a discussion of the state general education core, "computational thinking" is one of the competencies that have been proposed as necessary skills for our graduates. This coincides with [the announcement](#), by President Obama, of the \$4 billion [Computer Science for All](#) initiative. But what does computational thinking mean exactly? A [recent article](#) attempts to clear up confusion about computational thinking, to "make clear that the important skill is not coding, it's *computational thinking*," which is a concept building upon the original work of [Seymour Papert](#). Papert "visualizes programming as *communicating* with the computer (having a conversation) — and asserts that "learning to communicate with a computer may change the way other learning takes place." In fact, "Papert was co-director, under [Marvin Minsky](#), of the MIT Artificial Intelligence Laboratory from 1967 to 1981. Previously, he had worked with [Jean Piaget](#) in Geneva. Piaget was a developmental psychologist best known for pioneering the learning theory known as constructivism: simply put, that learners construct new knowledge (in their minds) from the interaction of their experiences with previous knowledge. Papert, in turn, developed the theory of *constructionism*, adding the notion that learning is enhanced when the learner is engaged in

*'constructing a meaningful product.'*” This notion then connects computational thinking to the humanities, which study the broader dynamics of human-meaning construction.

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