

**Faculty Representative Mary Gilly**  
**Remarks to the Board of Regents**  
**January 2015**

Thank you, Chair Varner, for the opportunity to speak to the Regents on behalf of the Academic Senate.

In September, Regent Fred Ruiz asked me if I would talk to the Regents about how technology is affecting classroom teaching (not online classes). So, Regent Ruiz, I have taken your suggestion and expanded it to talk about how technology has affected faculty as they engage not only in teaching but also research. I can only give you a few examples today, but I've chosen from a variety of disciplines to give you an idea of the range of impacts.

While you've heard about MOOCs and online-classes at previous Regents meetings, it is important to note that classrooms, like phones, are now "smart." All campuses invest in classroom technology so faculty can access the Internet in real time. Many faculty adapt to large classes by using Personal Response Systems, or clickers, for in-class polling. In-class polls and learning management systems with pre-class quizzes encourage students to come to class prepared and allow faculty to identify material students find most challenging and focus class time accordingly. Has this technology reduced the amount of time faculty spend on course preparation and delivery? Absolutely not. But what it has done is enable faculty to offer students alternative means of accessing content. In her Computer Engineering class at UC Santa Cruz, Professor Tracy Larrabee uses a dynamic system where she writes on PowerPoint slides she has prepared. These slides (now customized for this class) are then made into web pages that students can access immediately. Professor Larabee also uses a system that allows students to communicate with her during class by annotating the slides. She is a more effective teacher because her students have immediate access to her notes to supplement their own and can ask questions without raising their hands to call attention to their failure to understand a point or concept.

Another way faculty use technology is through simulations, sort of like the ones airline pilots use or the old SimCity games. In my Brand Management class, I use an online simulation where students engage in strategic decision-making and see results of their decisions without actually incurring market risk. But simulations also prepare students for life-and-death situations. Professor Heather Young uses the technology in her nursing classroom at UC Davis to give students the experience of dealing with an emergency without endangering patients – better preparing them to manage the stress and fear of an actual emergency situation.

You may have heard of something called the “flipped classroom,” where professors post videos of their lectures online for students to watch on their own time in advance. Class time is spent on discussions of course content, applying material, or group work. This technology isn’t used only in the undergraduate classroom. Professor Allen McCutchan at UC San Diego uses this approach in his courses for the Master of Advanced Studies in Clinical Research. His students, who are working professionals, view lectures on their own and spend class time applying the principles from the lectures in group exercises. Professor McCutchan and his colleagues are expanding the course internationally, sending course materials on CD’s and textbooks to Ethiopia and then spending about 30 hours over one week with students there.

It would be surprising if we did not use technology in the classroom, since it permeates our campuses. The way we do research has changed in every field, as I will illustrate with just a few very different examples. In my own work, I now collect consumer data using online focus groups and Amazon Mechanical Turk, an online marketplace for people around the world to complete tasks such as surveys of consumer decision-making.

Professor Lori Lubin at UC Davis explains the impact of technology in astronomy:

With the advent of state-of-the-art multi-object spectrographs on the Keck 10 meter telescopes, I now can study multiple (up to 100 or more) fainter, more distant galaxies at one time. This technology . . . allows me to quantify statistical samples of galaxies across larger scales and earlier in the history of the Universe than my predecessors could imagine.

And, with the mapping of the human genome, research in medicine at the molecular level has had just as big an impact on human health as these sophisticated telescopes have had on understanding the creation of the universe.

Incorporating technology into research in the humanities has been as transformational as in STEM fields. Professor Jeffrey Knapp at UC Berkeley explains its impact on his historically grounded work in English Renaissance literature. He says:

For my first book, which considered the relation between Renaissance literature and the European discovery of America, I spent years reading primary material at hard-to-reach archives or by painstakingly winding through reel after reel of microfilm. But now, almost all of this material is online at Early English Books Online (EBO): I can read, search and download any document at any time. If I were to begin my first book again, my years of research would now take me a few months only, and the results

would be far more definitive, thanks to my new online-enabled capacity to search and re-read at will. I'm convinced that my scholarship has become much stronger than it was before.

While the availability of searchable databases in many fields enables faster production of scholarly work, it has also created such high new expectations for scholarship that the time to complete a paper may not have changed much.

All this is not to say that technology hasn't had negative impacts on research and teaching. Students are able to easily obtain papers to plagiarize and use cellphones to access the Internet during exams. In very recent news, a cheating scandal at Dartmouth involved absent students giving their clickers to classmates to give answers for them, ironically in a course on "Sports, Ethics and Religion." Of course, having 24/7 technology also means that students and colleagues expect faculty to quickly respond at all hours.

In 1930, the economist John Maynard Keynes predicted that technology would make workers so efficient that all of us would only need to work 15 hours/week. Technology certainly enhances faculty effectiveness in their research and teaching, but is it making us efficient enough that we can work only 15 hours/week? I'm afraid not. Nor is technology enabling faculty to spend less time on classroom teaching or to enroll twice as many students in their classes. I will end with a quotation from Michael Zastrocky, a nationally respected expert on IT trends in higher education: "The instructor is still the key to successful learning in both the virtual and the traditional classroom. IT is great at delivering content, but building bridges to wisdom and understanding is a human experience."

Chair Varner, this concludes my remarks.