Question and Answer: Jennifer Earl and Kevin Almeroth

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How computers and the Internet are changing education, politics, business and much more.

The Center for Information Technology and Society at UC Santa Barbara studies how computers and the Internet are changing education, politics, business and other realms in sometimes unexpected ways. As with many other UCSB research groups, its approach is interdisciplinary, drawing on insights and research from engineering, social sciences and the humanities. Convergence recently talked with Sociology Associate Professor Jennifer Earl, who took over as director at the center last summer, and Computer Science Professor Kevin Almeroth, who has been the associate director of CITS since its founding in 1999.

Jennifer, what drew you as a social scientist to this technology-focused program?

Earl: One of my areas of expertise is social movements within sociology. I realized six or seven years ago that social movements were fundamentally changing — or at least with unique, innovative uses of technology, they could fundamentally change. I thought
to myself that if sociologists don’t get better at studying technology, then everything I know about social movements is going to be less and less relevant over time.

Give us an example of an activist movement that is changing with technology.

Earl: One is the strategic voting movement, which was essentially people getting together on the Internet to try to game the Electoral College. If they wanted to vote for a third-party candidate but were worried about the effects of that vote on the election between Bush and Gore in 2000, then they could essentially agree to trade votes over the Internet.

The second example is that we’re seeing people serving as something like ?lone wolf? organizers. For example, if you have concerns about animal rights, it used to be that you would take action on that by affiliating yourself with an organization, like PETA, that was already well established and then attending their events. Well, the low cost of organizing on the Internet can allow people to become their own organizers. People start petitions on their own online. They start letter-writing and email campaigns online. Scattered individuals started the strategic voting movement that I just mentioned.

Coming from the Computer Science side, Kevin, what’s your interest in this interdisciplinary program?

Almeroth: I actually have two interests. One is more straightforward: to assess the impact of technology on education. There is a whole other dimension that’s a little more radical — trying to understand the impact of nearly ubiquitous access to the Internet through wireless networks. Thinking back to social action, you can think about using cell phones and instant messaging to coordinate a rally. There are other applications, for example, in the environmental area. They’re asking what would have happened with the Exxon Valdez if people had had cell phones on their cameras when they went up there to rescue baby seals. There would have been much more social outrage at that kind of accident.

What would have happened during Hurricane Katrina if you had had today’s pairing of cell-phone video and YouTube — with near-instant transmission of cell-phone video just about anywhere?

Almeroth: The network came down in Katrina, so cell phones couldn’t be used. But to keep this from happening the next time, we’re putting in a proposal to the National
Science Foundation for what we call impromptu networks. These would enable FEMA to come in with devices that fit into a trailer, turn up a solar-powered antenna and set up a network that can support both Internet and cell phone communication. The technology also might help people be rescued sooner. We envision cell phones, enabled with GPS, where anyone can help rescuers find stranded people; you snap a picture and send it in. Your cell phone has GPS coordinates, and that?s everything you need to send a rescue team.

Earl: Let me give you an example of something Internet-enabled that was successful in the wake of Katrina. One of the major problems faced by survivors was how to get housing. A group created a Web site that essentially allowed people to announce, ?Hey, I have a spare couch that someone can sleep on,? ?I have a spare bedroom,? ?I have a spare guest house.? Then people who were affected by Katrina could go online and search for housing in the area they evacuated to. The real power of such an application is that it allows thousands of people across the country who have slack resources to come together and contribute those slack resources to solving a national crisis.

Let?s talk about specific research projects at CITS. Kevin, what do you see as the most interesting project right now?

Almeroth: We are assessing personal response systems ? essentially the clickers from the TV show ?Who Wants to Be a Millionaire.? We had several faculty members give lectures as part of their courses ? I used this in my class ? where you ask questions and students would enter into their clickers what the answers would be. Then you would put up a histogram of their responses. If 75% of the students get a question wrong based on the last lecture, then I can say, ?Well, obviously you didn?t get it. Let me stop and explain it.? Students also get feedback about how they?re doing compared to everyone else. If they?re one of the 5% who missed every question that day, they either need to buck up and pay attention, or it?s time to drop the course.

Earl: In a recent seminar, we were discussing a piece of research on these personal response systems. The research suggested that some students felt the devices were too foreign and therefore unnecessarily confusing. We started talking about this in the seminar and, all of a sudden, one of the graduate students said, ?What if you did it with a device that wasn?t a clicker? What if you used a device like a cell phone?? This is what I mean when I talk about CITS working to infuse technological innovation with social insights.

How close are we to doing what you say ? that is, using actual cell phones for this feedback mechanism?

Almeroth: This comes full circle. Now we?ve been tasked with another engineering problem that gets us closer to solving this societal problem. I actually think it?s a little harder technologically, just because a cell phone is a more flexible device. You hand somebody a clicker and say, ?Press one through nine,? it?s a little bit easier. But we?ll tasks it and we?ll go off and write a little applet that you can put on your cell phone and it will work just fine.

Kevin, as someone who has been with the CITS since the beginning, how would you sum up its achievement so far?
Almeroth: To use a business analogy, this campus and many others have very successful established business units—the academic disciplines—that resist major, rapid changes. But centers such as CITS incubate new ideas and, at the same time, generate a lot of give and take. They might start with the existing research interests of faculty members, who come together in the center, but then it spawns new educational programs and creates new research directions as well. In the end, you've got tightly coupled education and research that, if successful, have an effect on the established disciplines.

And Jennifer, what do you see ahead for the Center?

Earl: We are also looking at ways to help incubate research beyond the kinds of things that we've already done. For instance, I've been talking with various people about putting together a toolkit lab that would be a repository for the kinds of computer-based research tools developed here at UCSB. Say I have a set of computer programs that have been written for a particular project but also could be used by other researchers. I donate those programs to this repository, so that if someone else is doing research, before they write their own code, they can look at this repository. We want to see ourselves as building almost like a snowball going down a hill—taking what we've done before and using it to get more and more productive research rolling.

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