Usable Security and Privacy in Technology Ethics Courses

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Ethics education, particularly in the engineering and science disciplines, is often an afterthought, a forced extra requirement, or a single lecture squeezed into a class without due consideration. In a review of the ABET 2000 (undergraduate engineering accreditation requirements) updates, a common view held by many engineering educators regarding ethics education is shared:

> "The most glaring problem [...] is that the subject matter is not computer science. The content of the 'strand' has no algorithms, no data structures, no mathematical analysis, no computer architecture, neither software development nor hardware design, no computer science theory. In short, the content is devoid of every standard element present in computer science research and education..." (Heckert)

This view has not substantially changed in the last 15 years. However, the need for improved ethics education, specifically around topics like cybersecurity and consumer privacy, has grown exponentially. From cyberwarfare and hacking to personal privacy protections, behavioral advertising, and smartphones, the issues facing professional Computer Scientists and Engineers, as well as consumers are more numerous and complicated than ever. These issues are not just some of the most core issues in technology ethics today, but they are also all prime examples of Usable Security and Privacy education, another area that some may view as "not computer science."

For the past five semesters I have been teaching the technology ethics class at the University of New Mexico, a course required by the Department of Computer Science for graduation with a bachelor's degree. I made several changes to the course. The book we had been using was at the time seven years old. I removed the book in favor of a collection of online materials. I require the students write an essay each week on a specific topic (to improve their ability to write on technological topics with care and rigor. I added a reading and application of the ACM Code of Ethics to create an ethical foundation and a discussion on whether or not technology creates entirely new ethical quandaries. And, of course, I added a focus on many of the core aspects of usable privacy and security.

Though I would argue, that it would be impossible not to. When I look at the topics that were absent in that textbook I see that there were no mentions of the cloud, of Facebook, of smartphones, of NSA surveillance, of drones, or cryptocurrencies. The issues that have become most relevant in a discussion of technology ethics all have some element of privacy or security, and often these systems fail where the user is ill-considered, forgotten, ignored, or simply not designed for.

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> "Good discussions on ethics are often driven by situations that challenge our abilities to determine the right thing to do, carry out effective ethical action, or lay out an effective strategy for avoiding ethical obstacles in the future." (USC Levan Institute)

I do not want to argue that shifting all usable privacy and security education into technology ethics class is actually the right way to move forward as a field. We don't have the time in the class (given the focus on writing skills, discussion and presentation skills, and a priority for breadth) to build systems or design user studies that really allow us the depth usable privacy and security deserves. However, I agree with the quote above, a good discussion on ethics focuses on hard problems, and the problems in this area are incredibly challenging. How to balance surveillance and domestic terrorism, free services and behavioral targeting, freedom from corrupt governments with usable communication technologies are wicked problems. And technology ethics classes are, I find, a suitable place to first explore these topics. Students here at UNM have become aware and often interested in the course material and have continued their education by taking more in-depth HCI and privacy and security classes.

Heckert, J. ABET's Engineering Criteria 2000 and Engineering Ethics: Where Do We Go From Here? 6/26/2006 [cited 2014 Monday, September 29, 2014]; Available from: http://www.onlineethics.org/cms/8944.aspx.

USC Levan Institute. Ethics Research Center. [cited 2014 Monday September 29, 2014]; Available from: http://dornsife.usc.edu/dilemmas-and-case-studies/.