Redeveloping Undergraduate Computer Science? & Colorado Learning Assessment Project [1]

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As Computer Science Department Chair, my top priority is strengthening our undergraduate program. Strategically, the foundation of all aspects of our department, including our research enterprise, will be support from alumni, and this support must be built on providing the best possible experience for our undergraduate students.

I have two personal initiatives in improving our undergraduate program. The first is adding project opportunities for our students at all levels. In partnership with the Faculty Teaching Excellence Program, I've created Educational Technology House (ETH), in which CS undergrads create technology for CU faculty to use in their teaching. Students can sign up for ETH as early as their first semester, and take it repeatedly for as long as they wish. This builds a mixed-level group of students that provides long-term social support for its members, as well as giving time for members to develop real depth in their skills. ETH is now entering its fourth year, and some of its participants are among the very best of the students we have had in CS.

My second effort is extensive revision of our introductory course for majors, CS1300. Over the years, we and other CS programs nationally found ourselves confronting two serious problems, frequent cheating and very low participation by women. These problems are not unrelated: the classroom climate created by cheating and the efforts to control it by ever more draconian policies was very unattractive to many women students.

Beginning last year, I developed a new version of CS1300 which eliminated these problems, and created an atmosphere in which students are encouraged, and indeed required, to work constructively together. At the same time, in response to research done here and nationally on the interests of women students, I have created new exercises for the class which make clearer the potential social benefits of computer technology. The result is a course whose appeal reaches beyond those students who are fascinated by technology for its own sake (a group that includes few women) to students whose interest is more in what technology can contribute to life. This year, CS1300 students will develop software which can be used to match the interests of students and faculty in the department, making a positive contribution to our department's culture. Thanks to a curriculum grant from Microsoft, students will be able to deploy their programs on the Web, giving them experience in their first semester with real-world software delivery.

Colorado Learning Assessment Project - Project Description

Interviews of CU students inspired by Richard Light's Harvard Assessment Project. Pilot interviews approved for Summer. Focus on factors affecting student engagement, including what makes course material interesting and uninteresting, and student views on relationships with faculty. Proposal under development for ethnographic study of student and faculty ideas about the purposes of academic work.

What was your approach and/or what evidence have you gathered?

Examples of student work

Groups audience:
President's Teaching Scholars Program

Links
[1] https://www.cu.edu/ptsp/redeveloping-undergraduate-computer-science%E2%80%A8-colorado-learning-assessment-project