
Computer Science Colloquium

Engaging Students in Lecture Courses

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Wednesday, 26 October 2005

Olsen 311

Refreshments at 2:30, Talk from 3:00-4:00

Ever since the dawn of mass education in the middle of the 19th century, people have attempted to apply technology to teaching. However, despite a few notable examples to the contrary, most of today's college teaching is done exactly as it was 150 years ago: by lecture. Given that most professors never take a single course in teaching methods, this situation is unlikely to change in the foreseeable future. After all, professors are really researchers who teach, not teachers who perform research.

The best lecturers try to engage students in conversations, making them active participants as opposed to passive listeners. To do this, they ask questions, throwing out thought-provoking issues to the class and encouraging students to respond. This technique has its roots in the "Socratic method," an approach to teaching logic developed by the Greek philosopher Socrates somewhere around 450 BC.

The problem with questioning strategies in today's classrooms is that most often only a few students respond. Instead of engaging all students, the class becomes a conversation between the professor and perhaps two or three students. The others are still relegated to passive listeners. Some students remain silent because they're afraid to make a mistake in front of their peers. Some hate drawing attention to themselves or lack confidence in their English. And some come from cultures that eschew speaking unless spoken to directly, inhibiting any inclination they might have to respond.

Unfortunately, students who do not engage in class discussions often "tune out" and withdraw from the underlying thought processes as well. They do not even think about the question being asked or try to answer it for themselves. Instead, they simply wait for other students to respond. Such behavior causes students to miss out on the reasoning, concluding, erring, and analyzing one's mistakes that are essential parts of the learning process.

The Engaged Classroom Project is designed to use technology to get all students to respond to professors' questions despite the many factors that inhibit them from doing so. It uses Tablet PCs equipped with interactive software that allows anonymous, two-way communication between students and professor. This colloquium will demonstrate two different approaches to using Tablet PCs for this purpose in classrooms, discuss their pros and cons, and present results from their use in actual courses.

Bio: Jesse M. Heines is an Associate Professor of Computer Science at the University of Massachusetts Lowell. He specializes in the implementation and evaluation of interactive, user-centered programs with rich graphical user interfaces. Prior to joining the UMass Lowell faculty in 1985, Jesse spent ten years with Digital Equipment Corporation, where he founded the Computer-Based Course Development Group. He is currently Information Co-Director of the Association for Computing Machinery Special Interest Group in Computer Science Education.