

ELECTRONIC TECHNOLOGIES IN THE COLLEGE CLASSROOM:  
PARADIGMS FOR SUCCESS

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Successful use of electronic technologies in the classroom depends on many factors, the most important of which, we assert, do not hinge on technological savvy in itself. They depend, rather, on asking three questions: what is the job, is technology appropriate to the job, and what is the best technology to do the job? Answering the first question will involve the use of technology in the context, certainly, of an actual course or course entity, but also of the broader campus culture, which relates in a direct way to the mission of the university.

For example, the authors teach at a small university where class sizes are moderate (maximum 35). Small class sizes are an important factor in attracting undergraduate students and the university's commitment to keeping classes small is an important part of the culture. Furthermore, while there are some targeted initiatives in distance delivery – notably a Master's degree global leadership program; there is no mission-critical interest in using distance delivery in the mainstream undergraduate program. Thus, while electronic tools may benefit the classroom experience and may indeed lead to some cost savings by the university, the development of such tools has to be within the context of teaching in a small class context.

But there are other contexts. One successful example utilizing the electronic delivery of course materials to replace the large lecture (in a large, public university) is the method used by Richard McCray at the University of Colorado to teach the Introductory Astronomy sequence. Faced with lack of attendance in these large lecture sections, and by budget considerations precluding smaller additional sections, Professor McCray, using a Pew Grant, redesigned the course around teams of students working in small groups. The bulk of the course content is delivered on-line; students learn through individual on-line exercises as well as through discussion groups and group projects<sup>1</sup>. There is still one large lecture class per week; the campus mission and culture are preserved.

The University of Central Florida adopted a similar approach to improve its course in America National Government. There, the goals of the restructuring were practical as well as mission-oriented. The course enrolled over 2000 students in sections of 80-100 students. Classroom space was in critical short supply; increasing the number of sections was not a viable option. But the course

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also had a retention problem and surveys indicated that partially web-based sections had somewhat higher retention rates.

Building on this, the department designed a web-based asynchronous learning environment based on web-based modules to encourage student participation. Class meeting time was reduced by two thirds. Bruce Wilson reports “students are, by necessity, more actively involved in the learning process. And instructional technology can also enhance students’ critical thinking skills. ... The use of the Internet in teaching Political Science gives instructors more opportunities to design activities that involve students’ direct participation and to follow clearly set instructional goals.”<sup>ii</sup>

Given that we are from a different kind of institution—residential, small classes, essentially the liberal arts model—our experience has been different. Our goals are different. Pope’s goal in implementing web-based tools was to increase opportunities for communication and participation in a computer science literacy class. The class is small (approximately 25), but there is a considerable amount of material to cover and the topics that dominate the headlines -- Microsoft Antitrust litigation, Privacy in Cyberspace, etc – provide fertile ground for discussion. He began using WebCT as a tool both for distributing informational materials and for on-line testing. In doing this, he relied on the students to read on their own time; his discussion/lecture now addresses related but different concepts in supplementing the text. Making the quizzes available online provided more opportunity for group and class discussion. Students were positive; they could find their grades, course syllabus, assignments and topic notes in one central location. Convenient, if not actually a revolution in pedagogy, but consistent, once again, with the campus culture.

Pope himself viewed the electronic interface as an opportunity to evaluate his own teaching. In any implementation of electronic technology in the classroom, a major evaluation of course objectives and teaching strategy is required, and he found the electronic tools promoted both class and online discussion. Drawbacks were a lengthy development and the availability of trained support staff.

Thurber, teaching an upper division class in English literature, has had a different experience. It was not obvious to him that the standard distance education model was appropriate, given both the mission of the university and his actual task, which was to investigate, in this case, the work of the English poet William Blake. He does not give quizzes as such, although short exercises related to that moment’s discussion do take place; there is no “lecture” and therefore no lecture notes. The course itself, in addition, was already as “interactive” as he (and his students) could stand. Instead, the goal was to use the Web to investigate the nature of hypermedia, particularly as the poet in question, Blake, had done an 18<sup>th</sup> century version of the same thing. His goals, therefore, were far more specific to the actual material—more contingent, more dependent on the actual poetry than on any idea about how to teach poetry. He created a course website

([www.sandiego.edu/~thurber/CyberBlake](http://www.sandiego.edu/~thurber/CyberBlake)) and asked the students to create their *own* hypermedia websites in lieu of the traditional paper—the rationale being, once again, not so much that hypermedia may be worth investigating, but that, given this poet’s practice, hypermedia are an appropriate, perhaps the most appropriate, response.

In creating this course, Thurber was guided by the second of two increasingly widespread implementations of what is generally referred to as distance education. The first typically involves placing the bulk of the course on the web, together with various kinds of electronic interaction. About this implementation Thurber has reservations, shared by most of his colleagues in the humanities—and indeed the College of Arts and Sciences, the largest in his university, has recently decided to deny transfer credit for undergraduate courses taken substantially online. The reasons are many, but essentially they involve basic questions—what is a course, and what do we expect our students to be able to do after taking one—to which this first distance education model returns only ambiguous answers.

The second model, however, involves a combination of traditional course and online work, “real” as well as “virtual,” with variations as diverse as the instructors and institutions that choose to work this way. Here the use of technology in the classroom displaces the substitution of technology *for* the classroom, a far less vexed implementation when the issue is, as in Thurber’s case, the teaching of poetry in a residential university with smallish classes. He has been guided, in particular, by the paradigm developed at Britain’s Open University (<http://www.open.ac.uk>) which supplements online material with local study centers (and tutors) at learning centers around the world. On this model, the discussion, always specific, always local, and always the joint product of the persons present on that occasion, is preserved, together with ancillary electronic material and the opportunity, which he welcomes for his classes, for students to write back at the sea of electronic media they are surrounded by, owning the web by helping, in a small way, to create it.

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<sup>i</sup> Richard McCray: <http://www.center.rpi.edu/pewgrant/rd1award/UCBplan.html>

<sup>ii</sup> Bruce Wilson, Phillip Pollock, Kerstin Harmann, “Best of Both Worlds? Web-Enhanced or Traditional Instruction in American National Government.” *Political Chronicle*, v. 12, no. 2, Fall 2000