

A Residence-Hall Student Computer Environment

There can be little argument today about the value of computers in the teaching and learning process. Those of us who remember when an electric typewriter was a marvel can especially appreciate the capacity of today's electronics to find, sort, store, and transmit information. Certainly anyone who remembers doing research projects with file boxes full of 3x5 note cards has special gratitude for a 40-gigabyte hard drive and is likely to think Google seems too good to be true. Of course, we are only beginning to explore the learning possibilities afforded by computers.

A big question on campuses is how to provide enough computers so that the faculty can be assured that all students have access. How many labs are needed, how should they be equipped, where should they be located, and what should be the access hours? These are all pertinent questions—and difficult ones for some institutions. Fairness is an issue: if a professor wants to develop a Web-based course, or simply makes many assignments that require access to a computer, is the student who doesn't own a computer at a disadvantage? If we value computers in the educational process enough to encourage the faculty to make use of them, students' access to the technology is a critical issue.

Several years ago at Ohio University, these questions and concerns were paramount in our minds. For at least two years, we considered whether we should require all first-year students to arrive on campus with a computer. We were committed to using computer technology in the teaching and learning process, but we

hesitated to require private ownership. As a public university, we were concerned that lower-income students might be discouraged from applying to our institution. We had considered ways in which we might develop leasing plans that would lighten the financial burden, but no solution seemed quite right.

Another concern was how quickly our faculty would incorporate technology into their teaching methodology. Wouldn't students resent having to purchase a computer if only a few of their instructors made use of it? And then there was the problem of technical support. Unless we specified one system and manufacturer, technical support could be a challenge, and if we did specify a particular system and manufacturer, parents and students who had already made an investment would be unhappy. As is the habit of academics, we studied and discussed the matter ad infinitum.

Finally, it occurred to us that we were not taking advantage of our situation. Ours is a residential campus with a requirement that first- and second-year students live in university housing (unless they are local residents). In April 1999, the vice-president for administration suggested that if we were to defer some other planned upgrades to our residence halls, we could afford to install a desktop computer and printer in every residence-hall room without increasing rates. By the time school opened in the fall of 1999, we had installed 2,200 computers in the first-

year student rooms. In the summer of 2000, we finalized our "Student Computer Environment" by installing computers in all other residence-hall rooms—for a total of 4,550 computers in 41 buildings, serving 7,600 students.

I have been asked often in the succeeding years how well our residence-hall Student Computer Environment is working. Some have assumed that we implemented the plan as a recruiting advantage. Although that was not so, we did enjoy some recruiting advantage, especially in the first year or two. Some on campus were concerned that ubiquitous computers might have a dehumanizing effect on our student community. If so, there has been no evidence of this. In fact, the opposite may be true, unless one considers e-mail and instant messaging to be asocial.

The real test for success of this program is whether it is enhancing the teaching and learning process on campus. Are students using their residence-hall computers for their studies or for video games? Are faculty members taking advantage of the fact that every first- and second-year student has ready access to a computer? Are students making use of Internet resources for their research? Do they use the computers for conducting library catalog searches or only for chatting with friends?

Midway through the first year of this project, we conducted a rather informal assessment, mostly observations and random interviews with students. The response was promising. Students were

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pleased to have a computer available and were also happy with the software provided (Microsoft Office Suite). They felt their academic needs were accommodated, and some were proud that they had learned applications such as PowerPoint by themselves. E-mail correspondence between students and faculty members was already quite common, and many students indicated that their instructors made class notes and articles available online. Students in biology and English reported having listservs for their classes, and chemistry students indicated that many assignments were available only in Web-based format. Computer science and engineering students reported using their residence-hall computers to access departmental resources such as servers, print sharing, and specialized software. And students were already beginning to use the Internet for research, were familiar with the popular search engines, and were also accessing university library resources to do online searches.

Midyear during the second year of the project, we conducted another assessment via eight focus groups. These groups comprised ninety-seven participants in eight different residence halls at various locations on campus, first-year and upper-class students from a variety of majors, about half men and half women. Students still noted making a great deal of personal use of the computers, but they reported more varied and sophisticated academic applications of the system. They cited more communication with faculty and classmates, more classes with e-mail lists, and more online help sessions. Upper-class students reported an increase in class-oriented computer use from the previous year, and first-year students noted greater use from fall to winter quarter. Although students acknowledged spending a lot of time using the computer, Internet addiction was not seen as a common problem, nor was online privacy. And students found that having ready access to a computer had extended (or at least changed the schedule of) their work hours. Many cited the advantage of being able to work on a paper until two or three o'clock in the morning, since they no longer had to go to a computer lab. Most students reported using the computers at least ten hours per

week, and nearly 20 percent reported using them twenty hours or more per week.

We definitely believe that the learning environment has been enhanced by computers in the residence halls, but the good results are due not just to the computers and to the students' receptiveness. Two other factors have been critical in this success: (1) a supportive faculty response; and (2) very effective technical support mechanisms.

Faculty members have been assisted in their use of computers for teaching by an instructional technology support center that was established concurrently with the Student Computer Environment. The Center for Innovations in Technology for Learning (CITL) began with a pilot group of thirty faculty using Blackboard in August 1999; that number has now expanded to more than four hundred. Faculty interests and expertise vary widely, of course. Although relatively few have completely redesigned their courses to take advantage of technology, many either have created entirely new courses in an online format or have integrated technology into courses in small ways, short of redesign. Everything faculty members have done to avail themselves of the services of the CITL, or to incorporate technology into their teaching, has been completely voluntary. The CITL has served approximately 25 percent of the faculty directly, and we believe that at least an equal number of faculty have begun on their own to use computer technology for teaching. Collaboration between the CITL and the Center for Writing Excellence and the Center for Teaching Excellence has also been a key to more effective use of computer technology for teaching and learning. Because of these collaborations, the CITL has expanded its influence and effectiveness on the campus, to the eventual benefit of the students.

To fully describe the other critical element mentioned above—technical support—would require far more space than I have here. The creativity and teamwork of our technical support staff has been impressive. From installation and inventory control to Web-based support and the help desk, the system and the students have received expert care. The support cost is \$179 per computer per year, or

\$107 per residence-hall student per year. The ratio for computers to help-desk staff is 1,138:1; the ratio is 1,825:1 for students to help-desk staff. All student computers have a standardized desktop (provided also to other students outside the residence-hall Student Computer Environment), which helps to reduce support complications. CPUs are replaced every three years; monitors, keyboards, and printers are reused as feasible.

The residence-hall Student Computer Environment is a work in progress, but it has definitely enhanced our teaching and learning environment. Now in its fourth year, the project has benefited nearly all the current undergraduates. It is, we believe, helping us to meet our objectives for increased student engagement and active learning, which is our principal objective. But other questions remain. For example, how can we measure the effect of students' computer use itself on student learning? Are we spending more than is justified for the learning results, or should we be investing further? What about faculty? We have engaged in no activities to pressure faculty to increase their reliance on technology in their teaching methodologies, but should we be more directive in this area? How do we compare with other campuses in the number or percentage of courses that have integrated technology into the methodology? And what are the next steps in technological development? Since our campus will soon be equipped for wireless communication throughout, will we want to provide laptops rather than desktop machines, or is there something else around the corner—something that may be even more exciting?

The questions and challenges are endless. Still, we have never regretted our decision to commit to a technology orientation for teaching and learning at our university.

Note

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