

Faculty Perceptions and Uses of Instructional Technology

A study at one university system revealed the current state of technology and some steps that could improve it

By **Warren Wilson**

Technology has become pervasive. It is in our homes, our schools, our cars—everywhere. Students, faculty, parents, employers, and the general public demand that technology become part of the educational process. These demands, combined with fiscal pressures and the need for educational efficiencies, are forcing technology deep into the academy.

Research shows pedagogical benefits to incorporating technology into the curriculum. A review of the background literature indicates that improving student learning is one of the primary motivations to using technology. This enhanced learning experience benefits students in research and communication skills, independent learning, access to worldwide resources, and future careers. Simple knowledge of technology, however, is not sufficient to produce good teaching. Exemplary teaching combines skillful use of pedagogy with content expertise and innovative uses of technology, embedding key elements into course design.

Different Motivations, Same Result

University efforts to introduce technology are influenced by several factors. Technology provides a way for students to learn more and varied content faster. Many public officials and higher education administrators see technology as a means to make universities more efficient and more accessible. Others view technology as a possible income

generator for the institution. Still other officials see technology as a vehicle to make education available to a diverse and dispersed population. Many students (traditional as well as nontraditional), professionals, and employers expect technology to offer them ways to gain the learning they want without leaving the home or workplace. As institutions consider incorporating instructional technology, the stage is set for a review of the institution's mission, curricula, and faculty priorities.

The South Dakota Regental System developed a study to investigate the issues surrounding the integration of technology into the classroom and to make recommendations for better use of technology in the curriculum. This survey was done in the fall of 2001. It included all full-time faculty (tenured and non-tenured) at the six public universities in South Dakota.

Some differences—based on gender and on study variables—appeared in the results. For example, female faculty members are more likely to use university resource centers than male faculty members. The old saying about men never stopping to ask directions seems to apply with technology, too. Few significant differences were found for age or rank, however, suggesting that senior professors can still learn new tricks.

Study Findings

Results of the study led to several conclusions about the use of instructional technology in the South Dakota system:

1. *Faculty provided with instructional technologies use them extensively.*

Transforming the use of technology requires many changes. As more technology is incorporated into the classroom, and as more faculty become accustomed to the technology, new methods for teaching and effectively using the technology will need to prevail. Recent studies show that Web-based courses can be an intellectually challenging forum that elicits deep thinking from students. Faculty indicated familiarity with technology and motivation to use it, and those not currently using available technologies intend to use them in the future. Faculty seem comfortable learning new technology and are motivated to put it into practice. The implication here is that university programs should be designed with the assumption that faculty either are using or are going to use technology.

2. *Faculty who teach distance-education courses are more likely to use instructional technology than those who only teach on campus.*

Because of this finding, teachers of distance-education courses should be encouraged to mentor or train other faculty in the effective use of technology for learning.

3. *Faculty learn about technology primarily through self-help, not from university-provided sources.*

Very few faculty look to the Computer Center and the Library/Media Center to stay current with technology. Faculty indicated that they most often learn

on their own, not in university resource centers. This pattern may be a function of how faculty have traditionally learned their subject matter. There may be more effective and efficient means to assist faculty in learning the new technologies, however. For example, certain commercial products, or programs that universities could develop, can provide training in small modules (such as 7- to 15-minute segments) for various technologies or application uses. In addition, the survey results indicated that the Computer Center and the Library/Media Center, which are seen as having little positive impact on faculty development, should be evaluated and revamped to better meet the needs of faculty.

4. *For faculty, some campus resources are more useful than others.*

Faculty consider the centers for instructional design and support as good learning resources. Distance-education services and campus technology infrastructure also were generally seen as satisfactory. Laboratories (research and language), however, were not viewed as good places to keep current with technology.

Even though distance-education services and the on-campus technology infrastructure were seen as adequate, strategies must be developed to provide services as the teaching/learning paradigm shifts to be student-centric. For instance, universities will need to provide technical as well as content support to students in electronic classes. Strategies must also cover the constantly changing nature of technology. The challenge for the university is to promote valuable resources and improve them to better meet faculty needs. This could be done by tying use of these centers to university initiatives, like faculty training grants.

5. *Internal incentives have the most significant impact on faculty.*

Money has been shown to be a great “dissatisfier” but a weak satisfier. In our study, faculty reported that intrinsic incentives and those that benefit students have the strongest influence. As university administration looks for incentives to promote the use of technology, these findings should provide clear direction.

Exemplary teaching combines skillful use of pedagogy with content expertise and innovative uses of technology.

6. *The three most common barriers to successful use of technology were identified as time, funding, and faculty reward systems.*

Having enough time is the most critical element to successfully implementing technology; indeed, time restraints affect everyone. Second, new technologies are expensive, both to purchase and to support, and no technology implementation project can succeed without adequate infrastructure funding. Third, new definitions of workload and technology innovation are necessary. Distance or electronic teaching is not the same as teaching in a traditional classroom. Not only are new techniques needed but also innovative ways to recognize and reward faculty for their successful use of technology. Faculty reward systems can include monetary rewards, but other rewards, such as recognition, tenure, or promotion factors, may work equally well or better.

7. *Challenges that were viewed as having the most impact were technical expertise and unrealistic expectations.*

Clearly, the first challenge is a training and support issue that absolutely must be addressed. Unrealistic expectations (from the perspectives of students and administrators) can relate to the available time, to training and support, and to the faculty reward structure.

Recommendations for Practice

As stated earlier, most faculty are using instructional technology, though not all are pleased with all aspects of the technology environment. Technology must be used to enhance the educational experience, not to overpower or replace it. Following are some recommendations to accomplish this:

1. *Universities must support faculty in more and in new ways.*

Support can take the form of newer equipment or support staff to assist with new software and similar issues. Most universities have begun to address technical training requirements. More should be done, however, to incorporate technology more fully into the learning process, especially the pedagogical side, by improving and updating faculty development opportunities. A team approach between the content, technical, and pedagogy specialists can produce the most effective learning experience for students.

2. *Programs need to be developed to help faculty learn new technology.*

These programs cannot be offered only on a schedule that accommodates the support staff—the schedule should fit the faculty members’ schedules. Universities might even need to deliver support to the faculty at individual offices, at a time that is convenient for the faculty members.

3. *Universities should pursue creative approaches to providing faculty with more time to integrate technology into the curriculum.*

Faculty need time to learn about new technologies, select an appropriate one, implement that particular technology, and then figure out how best to use it in their courses.

4. *New incentive programs are necessary.*

These do not have to be purely monetary in nature. New programs should recognize the efforts and innovative practices that faculty employ. Because many faculty are motivated by student benefits, such as future careers and improved learning, an incentive program could tie in with student testimonials on the benefits they experienced from certain classes that use technology in innovative ways.

5. *Many changes brought about by new technologies will require new funding approaches.*

Technology purchases need to move from one-time dollars to the ongoing portion of the budget.

6. *Collaboration among universities can speed the deployment of new technologies across the state.*

This can take the form of “best practices” or a forum. Collaboration can also reduce and recover the high cost of program development.

7. *Faculty and university administration need to be encouraged to understand and adopt the new student-centered paradigm.*

Learner-centered education can fit well with the new technologies. This new learning paradigm puts the student in the center of the learning environment as an active participant. Faculty can more easily mold learning modules to the needs of the individual student by utilizing technology.

8. *The recruitment and tenure and promotion processes must recognize technology's impact on instruction in the future. Innovative ways to recognize and reward faculty for their successful use of technology and electronic publications*

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can certainly include monetary rewards. However, other rewards, such as recognition in the tenure and promotion processes for use of technology, might work equally well.

Summary

Rather than viewing technology as merely a tool for delivery, like a sophis-

ticated interactive video system, higher education should see technology as a means to improve learning. It is a tool that, if used wisely, can produce improved learning experiences. Technology has the potential to transform and expand the educational experience by enhancing real-world, lifelong learning and problem-solving skills. Like most efforts, to be effective, it will take money and work.

The study is available through Dissertation Abstract databases, source number DAI-A 62/05 pg 1679. The full study is available via interlibrary loan.

Warren Wilson (wjlwilson@ris.sdbor.edu) is Director, Regents Information Systems, at the South Dakota State Board of Regents System Office in Vermillion, South Dakota, and a member of the EDUCAUSE Quarterly Editorial Committee.