Teaming Up to Develop a Faculty Institute on Teaching, Learning and Technology

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A week-long Faculty Institute on Teaching, Learning, and Technology was developed at the University of Delaware through the collaborative effort of four different areas of the University, each with significant experiences in offering faculty instruction and service. The response from faculty was overwhelmingly positive. This article describes this collaborative experience and suggests some keys to success for other institutions that may be planning faculty technology development programs.

The University of Delaware Faculty Institute on Teaching, Learning, and Technology, offered in June 1995, January 1996, and June 1996, was planned by a collaborative team from four different areas of the University that provide educational and instructional development services to faculty—Information Technologies/User Services (IT/US), the Center for Teaching Effectiveness (CTE), the Library, and the Instructional Technology Center (ITC). (See the sidebar on page 24 for functional descriptions of each of these areas.) The Institute’s purpose was to encourage faculty to make greater use of technological resources for instruction and to help them make effective use of information technology, electronic library resources, and multimedia.

The first week-long faculty Institute was designed and implemented within eight weeks; the second Institute was snowed out by the blizzard of 1996; and the third Institute, held in June 1996, was even more successful than the first. What follows is a description of how four separate areas of the University, reporting to different...
administrative units, came together as a team and created a successful ongoing faculty development project.

Environment

The University of Delaware technological infrastructure grew rapidly during the 1990s. The campus network reached every classroom, every residence hall, the Library, and all campus offices. Technologically advanced lecture halls and classrooms were developed, and the Library expanded access to a wide variety of information resources available from all networked access points.

The University implemented a multi-year plan to be completed by 1997 to ensure that all faculty have access to computers capable of reaching the World Wide Web. University computing purchase plans made it possible for faculty and other University employees to purchase computing tools for home use with interest-free loans paid for through payroll deductions. In addition, the University committed to providing support for network access from home.

All of this activity increased faculty motivation to learn how to use the available equipment and software in the teaching and learning process. Use of technology for both teaching and research has received strong support in University planning efforts, which recognized that support and training services are necessary components of any plan to achieve a technologically advanced campus. As a result, a wide range of academic, instructional, and professional development training programs began to be created to support faculty use of technology in teaching. These programs, however, were developed by four separate units at the University, each with its own culture and focus, as opposed to being part of a University-wide effort to provide a program for faculty to learn about and use the complex array of electronic information resources, wired facilities, networking, and instructional strategies.

Faculty use of technology for instruction

During the 1994/95 academic year, University of Delaware faculty began to express the desire for specialized training on the new hardware and software, as well as dedicated time to explore the potential of these new tools and ways to use them to advantage in the teaching and learning process. Use of technology at the University then was similar to that reported at other institutions. Surveys of colleges and universities across the United States were finding that most faculty were comfortable using computers for word processing, and that some faculty used electronic mail to communicate with their students. The application of technology to daily teaching, however, had been slow. Technology in the classroom meant in some cases that word-processed overheads had replaced handwritten overheads, while in other cases a few faculty were developing Web pages for their classes. What could explain this phenomenon?

One explanation put forth by William Geoghegan applies the theories proposed by Moore and Rogers and uses the bell curve to understand faculty behavior with regard to adoption of innovations such as new technologies. “Innovators” and “early adopters,” says Geoghegan, constitute the first 15 percent, traditional faculty are the majority or “mainstream” faculty constituting the central 70 percent, and the “nonadopters,” who will never adopt these technologies into their classrooms, form the last 15 percent. He emphasizes that the majority need assistance in “crossing the chasm” from the “mainstream” to technology “adoption.”2

Using this model of adoption-of-innovation behavior, the goal at the University of Delaware became focused on providing the requisite assistance for “mainstream” faculty to adapt technology to teaching. In the winter of 1995, the University provost initiated a meeting chaired by the vice provost for academic affairs that included faculty, the registrar, the director of libraries, the director of the Center for Teaching Effectiveness, the vice president of information technologies, and managers of units that had been developing faculty training programs for using technology to teach. The committee included faculty who represented both novice and advanced users of technology. This group held two meetings to discuss how best to provide faculty with assistance in using technology in the classroom. The first outcome of those meetings was a decision to survey faculty to determine their needs, and the second outcome was the formation of a specific team made up of representatives from each of the four cooperating units and charged with planning and implementing a cohesive program.

Results of survey of faculty use of technology

The first step in the planning process was to survey the faculty on the uses of technology in the spring of 1995. The survey was designed and conducted by the Center for Teaching Effectiveness, with input from the CTE Faculty Advisory Board and the other three cooperating units (IT/US, ITC, and the Library). The survey was mailed to 950 faculty in April of 1995, and resulted in a 33 percent response rate when 315 were returned. Survey responses revealed much about faculty learning needs—they essentially served...
Areas Represented on the Team

The University of Delaware Library consists of the Morris Library, the main library, and four branch libraries: Agriculture, Chemistry, Physics, and Marine Studies. Over one million users enter the Morris Library each year. Faculty, staff, and students use DELCAT, the online catalog, to access the 2.2 million volumes of books and journals, as well as a vast array of electronic resources, including subscriptions to over thirty-five full-text and bibliographic networked databases available to University faculty, staff and students. Over 8,000 users are reached each year by the library’s instructional program, which includes group orientations, electronic library workshops, lectures to classes at the request of faculty, an electronic freshman English course unit on using the Library, and a credit course on Electronic Library Resources. The Library also offers individual one-on-one instruction to faculty on using electronic library resources in their office or in the Library. The Library is committed to service and works closely with faculty to develop library collections and new services. It is a member of the Association of Research Libraries, the Center for Research Libraries, and PALINET, a state network through which it is connected to OCLC (Online Computer Library Center).

The Instructional Technology Center (ITC), located in the College of Education, directs its teaching and development efforts toward helping on-campus and off-campus constituencies explore innovative solutions to difficult problems through the use of instructional technologies. For over twenty years, ITC researchers and developers have worked with University faculty to create hundreds of computer software, interactive videodisk, and multimedia programs that address curricular, instructional, and informational needs across a wide range of subjects. Many of these programs are used in schools, colleges, universities, and companies around the world. Several have won national and international awards for excellence. Within the College of Education, the ITC works with faculty and staff to integrate technology into teacher preparation at both the undergraduate and graduate levels. The Center helps faculty use technology effectively in their own teaching as a model for aspiring educators and supports the college’s efforts to identify new ways technology can be used to improve schooling, teacher preparation, and faculty effectiveness. For in-service teacher training, the ITC has worked closely with Education faculty since 1977 to coordinate the Summer Institute in Educational and Assistive Technology.

The Center for Teaching Effectiveness (CTE) was established under the auspices of the Vice Provost for Academic Affairs to promote excellence in teaching at the University of Delaware. The CTE staff provide instructional consultations and develop and facilitate workshops covering areas related to more effective teaching and learning to approximately 300 different faculty members and 200 graduate teaching assistants each year. CTE supports the instructional improvement efforts of faculty, graduate teaching assistants, and other teaching personnel. This is accomplished through sponsorship of a series of faculty colloquia, roundtable discussions, workshops, and seminars on best practices in teaching and learning. In addition to campuswide group programs, CTE staff offer private, confidential consultations for faculty and teaching assistants; publish two newsletters and a handbook for teaching assistants, run a program of instructional improvement grants, and assist faculty to identify external funding sources for innovative instructional projects, such as the National Science Foundation-funded project in Problem Based Learning in the Undergraduate Sciences.
to dispel several myths about what faculty already knew or wanted to learn, and pinpointed areas where the four cooperating units could concentrate their efforts.

Most faculty who responded to the survey
- used computers both in the office and at home
- described themselves as "intermediate" or "advanced" computer users

Almost two-thirds of the faculty respondents wanted to learn more about how to
- use the Internet to retrieve information
- prepare text and graphics to send on the Internet
- use electronic library resources, including networked databases and full text
- use video, CD, and audio technologies

Over half of the faculty who responded wanted to see how other faculty
- use technology in their teaching
- use a networked environment

Approximately half of the respondents wanted to learn to
- use e-mail creatively in instruction
- communicate with and distribute materials to students
- search and utilize electronic library resources in instruction
- use computing applications to conduct research
- design and conduct courses using TV and video

One-sixth of the faculty described themselves as "technological novices" or "non-users," and this group provided some of the most valuable information about the specific needs of faculty who had not yet acquired the necessary skills to apply technology to instruction. Although a few faculty wanted basic instruction in software such as word processing and operating systems, one-third wanted to learn presentation software, and how to use the network and cable TV connections available in the classrooms. Approximately one-half of the respondents said that for their own learning, they preferred hands-on, step-by-step instruction conducted in small groups, which allowed for practice time and individual assistance. After taking a training class, most faculty wanted individual consultation on a single item, and 20 percent wanted consultation on how to apply what they learned to their own particular instructional projects. One-fourth requested online or paper tip sheets and other written reference materials as part of the instruction.

When asked what they most needed at present in order to use technology in their teaching, faculty responses were varied. Forty percent said they wanted to learn intermediate and advanced features of some applications. Thirty percent wanted help using the skills they already possessed to design classroom applications, and to learn how to get funding for software, equipment, and development time. This was not surprising given that the majority of respondents were intermediate or advanced users of technology. The novices asked for basic instruction on how to begin to use their computers, the instructional TV classrooms, video and/or satellite facilities, and for basic instructional design skills.

Typical survey comments from faculty identifying themselves as "novices" included:
- "I need to see what others are doing, so I know what is possible, and then have time to think about what, if anything, I might want to do."
- "What's available and how do I use it?"
- "What are my choices?"
- "Where do I go and who do I contact to find out what is available and how to gain access to equipment, software, and classrooms?"

Thirty-eight faculty said "yes" when asked if they would be willing to teach other faculty how to use technology, and included topics they would be willing to teach, which ranged from how to use software such as WordPerfect and Windows to multimedia applications. This level of volunteering was consistent with the experience of the CTE staff, who have a long tradition of having faculty teams teach other faculty about teaching.

It was clear from the survey that some faculty and administrators were already actively using the existing technology and electronic resource infrastructure of the campus in their classrooms. The challenge was to get other faculty, the "mainstream" majority, to begin to use the available resources: to develop faculty interest, then their skills, so that they could and would use technology in their teaching as well as their research.

The survey itself was a form of intervention and education, and it was necessary to quickly capitalize on the momentum and interest it generated. The next step—a formal planning process for the development of a cross-area coordinated program of instruction for faculty on using technology—was surprisingly brief.

**Planning process**

How did the University assist faculty in applying the tools of technology to their classrooms, where they have the ability to transform education? The dominant feature of the planning
was its simplicity, which allowed the implementation to take place eight weeks after the team first met. The collaborative team process is offered as a potential model for adoption by other institutions planning faculty technology instructional development programs.

The four members of the team were from four different areas of the University, each with considerable experience in providing educational services and development assistance to faculty. They collaborated by pooling their expertise and resources to design a plan that would increase faculty integration of the tools of information technology into their teaching.

The first time the team met as a group was to attend a symposium on teaching and technology at the University of Maryland. The two-hour travel time was used to discuss the faculty survey results, to brainstorm, and to decide on program design.

In one day, the team created a framework for the overall instructional design, set a tentative date, and decided on methods of communication and publicity. It was possible to accomplish so much in a short time because all team members had a shared frame of reference and similar goals. After this initial meeting, each team member then met with appropriate training staff in her division, and subsequent communication was primarily by telephone and e-mail. Only one formal planning meeting was held by the team after the trip to Maryland.

One factor that enabled the first faculty institute to occur only eight weeks later was the decision to use many of the already well-developed current technology workshops as a core curriculum.

**Participants:** Attendance would be limited to University of Delaware teaching staff to encourage participation and allow sufficient resources and staff support for all interested faculty.

**Time:** The Institute would extend over a one-week period in June 1995 during the first week of the summer session. This decision was based on faculty preference from the survey for either summer or winter training sessions.

**Content:** The workshops offered would consist of ones that had already been developed and presented in the previous year and that matched faculty survey responses. Workshop length would be one to three hours, in accord with faculty preferences. Demonstrations of newly wired electronic classrooms and specialized sites would be included as “open houses” and would feature presentations on using new equipment.

**Location:** Most workshops would be held in electronic classrooms. The Library, IT/US, and ITC each has its own instructional classroom equipped with twelve to twenty-five individual networked computer workstations for faculty to use.

**Faculty involvement:** Faculty who were currently using technology successfully would be invited to participate by presenting their experiences during the Institute.

**Fees:** All workshops would be free—standard practice at the University.

**Registration:** Each of the four cooperating areas would handle registration for its own workshops, rather than centralizing the process. This way questions could be answered by those staff most familiar with the workshops. The areas would try to minimize time conflicts, but as in any conference, several sessions might be occurring simultaneously. Faculty would be free to register for as many sessions as their own schedule would permit.

Faculty from the original provost-sponsored committee reviewed the team’s plan and gave it strong endorsement.

The CTE compiled the schedule based on team input, and produced a brochure with workshop descriptions and times, and registration procedures. The first print brochure was a simple, inexpensive, 11" X 17" yellow sheet. This was mailed to all faculty and professional staff using campus mail. The brochure was also made available on the University World Wide Web site, and the Institute was advertised in the campus news-
demonstration in retrieving graphics online. For example, the Art Site open house became a demonstration of specific types of information. For the week of the Institute, several scheduling changes were made. First, to help faculty prepare themselves for seminars with prerequisite skills, training was offered a week prior to the Institute. Second, the general sessions focused on those features that faculty could apply to teaching, and included small-group, hands-on, and how-to formats. Of these, the hands-on classes were far more popular than open houses. Classes on accessing the World Wide Web, searching the Web as a library resource, and integrating Web resources into the classroom were among the most popular workshops. Workshops about electronic journals and electronic document delivery were also popular. One problem arose in that some faculty attended sessions that relied on some prior knowledge they did not possess. For example, some people attended “Creating a Web Page for Your Class” without ever having browsed the Web, and some tried to learn PowerPoint without any prior experience with Windows.

Open houses at the end of the week and the emphasis was to demonstrate specific types of information. For example, the Art Site open house became a demonstration in retrieving graphics online rather than a general interest open house. The open house for the Technology Solutions Center (a pre-purchase consulting center) became a demonstration on selecting computers for the classroom.

The second Institute, held in June 1996, included two keynote speakers. One focused on the new research questions that must be investigated if educators are to establish clearly the contribution of technology to the learning process. The other keynote outlined the possibilities for learning that are being opened up by Web use. With these two speakers providing a context within which to view the changes in educational technology, eighteen faculty members gave demonstrations of their own use of technology in the classroom. Presentation topics ranged from using video to reach distance learners to using Java scripts to manipulate financial models. Workshops included Current Contents database searching and electronic business information resources.

The twenty-four hands-on workshops encompassed a broad range of topics, which can be summarized under three overarching areas: using electronic communication and electronic information resources to extend the classroom, learning and using presentation software, and creating and modifying Web pages. The four site-related demonstrations focused on specific services offered by specialized sites. For example, one demonstration provided illustrations on obtaining and analyzing survey data using the Research Data Management Services. A complete listing of the 1996 offerings is available at http://www.udel.edu/dcannon/faculty.html.

Attendance and participation

The total attendance for all sessions at the 1996 Institute (488, not including the prerequisite classes) was almost double the attendance at the 1995 Institute (247). Many participants attended multiple sessions. By eliminating duplicate names and names of those who do not have formal teaching responsibilities, we were able to ascertain that the number of individual faculty members attending also almost doubled between 1995 and 1996. Approximately 70 different faculty attended in 1995, while 120 faculty attended in 1996. It also appears that the majority of participants in the 1996 general sessions were newcomers and not from the same group of faculty that had attended the year before.

We have more complete records from the 1996 Institute and are able to make several more observations from them. The 1996 participants represented forty different departments from all ten colleges at the University, including those at...
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dean and department chair level. In both years, despite the fact that our initial survey results showed that faculty wanted to see other faculty demonstrate how they were using technology, attendance was highest at the hands-on workshops. Likewise the survey indicated that faculty wanted help with hardware, but very few came to the equipment-related demonstrations. Nevertheless, the group who attended general sessions and faculty demonstrations was different from the group who attended the skill-building sessions. This led us to conclude that the different types of sessions meet different learning needs.

We have learned not to be discouraged by the appearance of small numbers of participants in individual sessions. With any new offering, it is natural to expect a slow beginning, particularly in the area of technology, where faculty may be reluctant. However, in the course of one year, more than twice the number of people chose the options presented to them. As they have positive learning experiences that address their instructional needs, and adequate follow-up support, faculty will pass the word to their colleagues. We also expect participation to continue to increase as a result of the increased availability of new computing tools to faculty on their desks and in their homes.

Effectiveness

In both of the Institutes held to date, approximately 80 percent of the participants returned evaluations. Of these, 98 percent expressed a high degree of satisfaction with what they learned in the Institute workshops. In addition, 94 percent indicated that “yes” or “maybe” they would use what they learned in teaching their own classes.

Written evaluative comments were very positive, with many extolling the virtues of workshop leaders, the right pacing for their skills and understanding levels, and the individual assistance during the workshops when needed. This confirms our strong belief in choosing and training workshop leaders carefully and in structuring the content and pacing to accommodate novice learners.

Sample comments from the June 1996 Institute illustrate how faculty plan to use what they learned. The following are typical:

- “This really helped my understanding of where to direct students for journal information.”

Although attendance at the faculty demonstrations was light, those who attended indicated they learned what they wanted and liked meeting colleagues in other disciplines whom they can later contact for additional information. They especially appreciated seeing the wide variety of uses of technology that included using a simple videotape to ensure consistency in laboratory instruction across sections, using simulation software for student problem-based learning teams, using electronic library resources for resource based teaching, and developing Java applets \(^3\) to present mathematically accurate graphs in the classroom. (See sidebar for an example of one very successful faculty experience.)

Faculty who attended the first Institute were excited about what they accomplished during the fall semester. Many used e-mail or newsgroups to extend class discussions for the first time or had students retrieve syllabi and assignments via the World Wide Web. The success of the Institute is exemplified by the increasing number of faculty using mailing lists, Web pages, electronic library resources, library networked databases, and newsgroups, and ordering equipment for use in the classroom.

One business college faculty member came to the first Institute to present how he used newsgroups with classes. He was so impressed with another colleague’s presentation on the Web that he now includes using the Web for marketing in his Introduction to Marketing course.4 A physics faculty member and self-proclaimed computer phobic totally immersed himself in the first Institute, attending every session he could fit in. He has gone from browsing the Web for the first time in June 1995 to creating PowerPoint presentations and Web pages for his classes, and recently received funding from the National Science Foundation to collaborate with K-12 teachers on how to use interactive software to teach about physics and the Internet. Two faculty members in Textile Design and Consumer Economics have planned a uniquely designed course for fall 1996, using technology. They met with librarians to help structure the course project, gain recommendations for electronic resources, and plan how librarians will assist students.

Faculty also indicated that they would like to have the opportunity for individualized assistance. The Library established and advertised to faculty a formal service to provide faculty with one-on-one individual instruction on using electronic information resources, including net

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3 Java™ applets are Java programs that can be included in an HTML page, much like an image can be. When you use a Java-compatible browser to view a page that contains a Java applet, the applet’s code is transferred to your system and executed by the browser.

4 See http://www.udel.edu/alex/home.html#intro

"... the group who attended general sessions and faculty demonstrations was different from the group who attended the skill-building sessions."
worked databases and World Wide Web resources in faculty offices or in the Library by appointment. IT/US, CTE, and ITC have a long tradition of offering individualized consultations. In addition, IT/US with input from the other cooperating units prepared a Web-based document to familiarize faculty with the wealth of resources available on campus to help them get started using technology in their teaching.5

Faculty are accustomed to being experts, and when they are novice learners they experience the same anxiety as any new learner. Being sensitive to these factors, while at the same time helping faculty come to grips with being a student again, is a key success factor in helping faculty to adopt new technologies.

Future plans
As we did between June 1995 and June 1996, the team will revise the offerings to best meet the needs and interests of our audience in planning the next Institute. Hands-on classes are the most effective instructional model for learning any new skill, and this applies to technological skills as well. Faculty indicated on the original survey that they would like to see what other faculty are doing; however, the 1995 and 1996 attendance indicates that we need to balance those offerings. In 1995 and 1996, the Institute focused on novices. In 1997, the Institute planning will build on the progress of previous years by developing workshops for intermediate users. We will explore new topics for seminars, such as teleconferencing software for distance learning, intermediate World Wide Web development, and library full-text database searching.

Through the initial survey, thirty-eight faculty indicated they would be willing to teach other faculty how to use technology. One future goal is to create teams of faculty and technical specialists who will co-lead workshops. As faculty become more knowledgeable about these new teaching tools, it is expected there will be more expertise available to offer additional workshops which are focused primarily on the teaching and learning applications and less on learning how to use basic software.

Several technology interest groups exist on campus. During 1996/97 the team hopes to involve these groups in the planning process. These groups include the Faculty Technology Advisory Committee of CTE, the Multimedia Users Group (MUG), and the Teaching with Television Users Group (TTUG).

Specific suggestions for future Institutes from faculty evaluations include:
• Reduce the number of and include a moderator for faculty demonstrations, to provide more context for the overall significance of the technology and the potential beyond what is being demonstrated.

Jorge Cubillos, Assistant Professor, Foreign Languages and Literatures, is a Faculty Training Institute success story. He attended the June 1995 Institute with the idea of putting together Web pages for his classes and textbook, but without the skills to accomplish this. Before he took the seminars, the idea seemed “daunting.” Now he has Web pages for all of his classes. These provide links to Spanish radio stations, newspapers, magazines, and even movie clips. These resources encourage students to participate in and investigate Spanish language resources. Having “live” links available for his students has enhanced the learning process for Cubillos’ students. They can immerse themselves in a variety of resources not available in a traditional textbook.

Cubillos’ textbook is currently one of the best selling intermediate Spanish textbooks published by Heinle and Heinle, and the book’s associated Web page is one of the factors that have contributed to its success. Not only can students get information from the Web, but Spanish teachers who use his textbook are able to publish the teaching strategies they use with the book, thus further enhancing the book’s value.

Throughout the Middle Atlantic states, K-12 administrators and teachers seek out Cubillos’ advice on how to best apply technology to teaching foreign languages. Because of his work in the area of foreign language, Cubillos was asked to co-teach a three-week summer course for teachers on effective uses of technology in foreign language education.

The most important result that Cubillos perceives is the increase in student motivation. Traditionally languages have been a requirement to be fulfilled, not something that students are intrinsically motivated to learn. Cubillos has used technology to entice his students into participating in Spanish language culture: “My goal is to ultimately make my Web pages as exciting as MTV.”6

Cubillos was grateful for the classes offered by the Institute. They provided him with “very practical skills that have had a tremendous impact.”

5 See http://www.udel.edu/paully/it/
information about teaching from colleagues in their own disciplines.

- Encourage more faculty to do the research in their classrooms that will gather the data they need to show the effects of technology on student learning in their classes.

A variety of options are needed to accommodate the various ways faculty learn new skills. Workshops alone will not provide for the full range of learning needs. Other available paths for faculty training include informal lunchtime presentations, individualized instruction for faculty, sets of self-paced materials in printed text, and CD-ROM and videotape formats available in several locations around campus for faculty to borrow. Web pages are available from any classroom or office on campus.

MUG meets monthly to share their expertise with each other and maintains two listservs for ongoing discussion and updates on new technology. A number of novices have joined the group to learn more. TTUG has formed around distance learning and video/television-based learning. The feasibility of setting up additional instructional materials development labs with accompanying teams of instructional and technical consultants to assist faculty in developing educational materials is being explored. To enable the technology to be truly utilized in the classroom, those involved with planning the Institute have met with others in the University, such as the registrar, to assist in how best to provide comprehensive “classroom services” for faculty questions related to classrooms and teaching.

**Summary and recommendations**

Adding the technology tools to the teaching “tool kit” of faculty may enhance learning for many students. Practices that promise to bring mainstream faculty into this new era are those most likely to appeal to the intrinsic values and beliefs held by faculty:

- Providing additional consultation that specifically addresses the ways technology can enhance instruction adds another path to better teaching and learning.

- A positive institutional climate for teaching and strong institutional support may be the single most influential factor in efforts to improve teaching across an entire campus.

- The reasons people study most disciplines have very little to do with technology. Therefore, technology that contributes positively to what faculty and students do as they engage with each other in the learning process, and which addresses the concerns of faculty in effective ways, is more likely to increase mainstream faculty adoption of these new tools.

Finally, the experience at the University of Delaware has shown that educational technologies and resources, when supported by a farsighted administration, have the potential to empower faculty to achieve unanticipated classroom successes. Faculty determine the curriculum, and the evolution of technology on our campuses needs to be driven by the learning needs of students and the faculty’s efforts to meet those needs. Furthermore, comprehensive course and program evaluations, particularly the inclusion of student evaluations of the applications of educational technology, should be used to help assess the pedagogical value of any uses of these new and exciting “tools for teaching and learning.”

The potential impact of technology has dimensions beyond its useful and important pedagogical functions. For example, without the project described in this article, our four cooperating areas would not be working together in quite the same way. Although our traditional ways of operating were very effective and rewarding, we will continue working together on behalf of the faculty, for we have also discovered new and respected colleagues in this effort. Our challenge is even more complex, since we are attempting to transform and empower a whole campus rather than just one individual faculty member at a time. This means that each of us must be able to see where the others contribute, engage in meaningful dialogue, and continually ask of faculty and of ourselves: “What do you want your students to learn?” “Why?” “What do we know about the students’ learning needs?” and “What do we know about faculty members’ learning needs?”

The University’s computing network and the various faculty development support efforts are increasing the use of technology in the classroom while also increasing opportunities for collaborations among teaching and research faculty. These factors have also created unique alliances among academic service areas that support faculty in using new information technology resources and new teaching strategies.