

WHAT DO FACULTY WANT?

WE TESTED OUR IDEAS ON “WHAT FACULTY WANT” FROM INSTRUCTIONAL TECHNOLOGY AGAINST THE RESULTS OF A FACULTY SURVEY

By **John F. Chizmar** and **David B. Williams**

We've been researching, developing, and refining a set of Web-based technologies for our face-to-face and Internet-only courses on the Illinois State University campus over several years. Illinois State is a Carnegie-classified intensive doctoral/research university with some 20,000 students and 1,000 full and part-time faculty.

We employ a project-oriented teaching strategy, meaning one that uses Internet and Web technologies to encourage students to create authentic finished work, publish their work on the Web, and develop research techniques for finding data on the Internet

that they can apply to real-world problem solving. Using these technologies involves students actively in their own learning and helps prepare them for the world of work.

In this article, we analyze our approach to suggest the instructional technology services and products that faculty members want and can successfully use in the classroom. We treated our assertions as a set of hypotheses that cried out for testing. Consequently, we compared our assertions with the results of a survey of faculty on our campus designed to obtain a snapshot of faculty attitudes and needs regarding the use of instructional technology in their teaching and classroom activities.

We conducted the survey using a Web form.¹ We used four different listservs on campus to solicit responses to the survey. In effect, we reached faculty with enough interest in and experience with instructional technology to request membership in a listserv — precisely the group we aimed for. We received 105 responses, a rate we believe approaches 20 percent of the relevant faculty group. The survey respondents self-selected themselves into the categories of beginner, intermediate, and advanced technology users.

Pedagogical Issues

While our disciplines (economics and music) are as different as night and day (dismal scientist meets starving

artist), fundamentally many facets of our active learning solutions are similar. We strive to provide

- Forums to encourage student-to-student and student-to-faculty contact
- Frequent evaluation points
- Prompt feedback
- Real-life challenges and problem solving
- Publishing experiences including electronic portfolios
- Activities to create authentic products through real-world experiences
- Clear criteria for evaluating finished products
- Opportunities for revision

We firmly believe that pedagogy drives technology. Table 1 provides an inventory of the various technology applications we employ in our courses, all Internet based. The leftmost column shows how these techniques map to the applications that we've used to achieve the instructional goals above.

Table 1 further illustrates that we use a variety of teaching strategies. We carefully choose technology that lets

us present multimedia-rich information to our students and create anytime, anyplace student-to-student and student-to-faculty interactions. Most importantly, we choose technology to provide flexible guides for students to explore and create multimedia-rich environments to enhance learning. For more information on our use of technology in our courses and pedagogical strategies employed, refer to our previous work.²

So What Do Faculty Want?

We believe that analyzing our approach to using instructional technology can identify the essential characteristics of relevant products and services that faculty want to support them in using technology to teach. While we readily admit to being card-carrying early adopters, we nonetheless believe that our work can yield a set of needs representative of most faculty, even wary adopters. The stages of development that we've experienced as we struggled to improve our instructional technology are the same stages

that a novice instructional technologist will eventually pass through. We support each of our assertions below with a combination of anecdotal data from our classroom experience and data from our survey of faculty at our campus.

Assertion 1. Faculty want instructional technology driven by pedagogical goals.

Pedagogical goals drove our approach. We believe that technology must not be dominant and must not be used for its own sake.³ As long ago as 1972, the Carnegie Commission on Higher Education (The Fourth Revolution) created the litmus test for best use of instructional technology:

- the teaching-learning task to be performed [is] essential to the course to which it is applied, and
- the task could not be performed as well — if at all — for students without the technology.

Our choices of instructional technology are based on these premises.

Table 1			
Inventory of Instructional Technology Techniques			
Technology Tool	Course*	Strategy	Application
Web documents	Econ/Arts	Present	Distribution of class documents
RealAudio/Video	Arts	Present	Archived and live online delivery of instruction
Mallard Gradebook	Econ/Arts	Present	Online access to personal evaluation and immediate feedback on progress
Forms (CGIMail)	Econ/Arts	Interact	Online, format student responses and quick surveys, One-Minute Paper
E-mail critiques	Econ/Arts	Interact	Electronic quality exchanges of information between instructor and student
Listservs, NetForum, WebBoard	Econ/Arts	Interact	Archived interaction and discussion (bulletin board style)
AIM, Chat	Arts	Interact	Real-time conversations
Mallard Quizzes	Econ/Arts	Interact	Practice exams, online exams with automatic feedback
Web-based guides, tutorials, and labs	Econ/Arts	Guide and explore	Rich sets of learning resources created by the instructor for the students or generated by the students themselves
Interactive database (Tango)	Econ	Guide and explore	Online, interactive publications of student research
* Note: Econ = Economics; Arts = Fine Arts			

Survey of Faculty Needs and Attitudes for Instructional Technology

Note: In the tables below,

*1 = strongly disagree, 4 = somewhat agree,
2 = somewhat disagree, and
3 = no opinion, 5 = strongly agree.*

Statement 1: For instructional technology to be effective, it must first be driven by pedagogical needs and goals.

	1	2	3	4	5
Beginner	3.45	3.45	6.90	20.69	65.52
Intermediate	5.17	—	6.90	15.52	72.41
Advanced	5.56	—	5.56	16.67	72.22
All	4.76	0.95	6.67	17.14	70.48

Statement 2: I prefer to pick the one application I need to solve a specific pedagogical problem rather than having to adopt a Swiss-Army-knife Web tool that does everything.

	1	2	3	4	5
Beginner	13.79	6.90	44.83	17.24	17.24
Intermediate	10.34	18.97	15.52	29.31	25.86
Advanced	11.11	11.11	5.56	27.78	44.44
All	11.43	14.29	21.90	25.71	26.67

Statement 3: I want one "Web tool" that does everything (such as mail, chat, Web pages, grades, etc.).

	1	2	3	4	5
Beginner	6.90	17.24	37.93	24.14	13.79
Intermediate	24.14	20.69	24.14	17.24	13.79
Advanced	38.89	16.67	11.11	16.67	16.67
All	21.90	19.05	25.71	19.05	14.29

Statement 4: Most "Web tools" (such as Mallard and WebCT) simplify the task of creating online instructional materials by making assumptions about the structure and shape of courses and teaching that reduce my flexibility.

	1	2	3	4	5
Beginner	10.34	13.79	68.97	3.45	3.45
Intermediate	8.62	15.52	55.17	15.52	5.17
Advanced	22.22	16.67	33.33	22.22	5.56
All	11.43	15.24	55.24	13.33	4.76

Statement 5: I seek technical help when I want to know how to accomplish a specific task using technology.

	1	2	3	4	5
Beginner	3.45	—	10.34	44.83	41.38
Intermediate	3.45	8.62	8.62	39.66	39.66
Advanced	5.56	—	5.56	22.22	66.67
All	3.81	4.76	8.57	38.10	44.76

Statement 6: Demonstrations of the success and failure of other faculty technology projects is a waste of time.

	1	2	3	4	5
Beginner	41.38	37.93	10.34	6.90	3.45
Intermediate	36.21	32.76	18.97	6.90	5.17
Advanced	55.56	11.11	16.67	5.56	11.11
All	40.95	20.47	16.19	6.67	5.71

Statement 7: I would like more faculty showcases of instructional technology that demonstrate real-world applications in the classroom.

	1	2	3	4	5
Beginner	3.45	10.34	27.59	37.93	20.69
Intermediate	8.62	10.34	17.24	34.48	29.31
Advanced	22.22	—	11.11	27.78	38.89
All	9.52	8.57	19.05	34.29	28.57

Statement 8: I would use more instructional technology in my classes if I felt that there was sufficient support on campus to help me with the implementation.

	1	2	3	4	5
Beginner	6.90	10.34	17.24	37.93	27.59
Intermediate	13.79	13.79	15.52	34.48	22.41
Advanced	27.78	16.67	5.56	27.78	22.22
All	14.29	13.33	14.29	34.29	23.81

Statement 9: The difficulties of knowing where and from whom to seek help on campus create a barrier to the adoption of instructional technology.

	1	2	3	4	5
Beginner	3.45	6.90	13.79	44.83	31.03
Intermediate	8.62	20.69	12.07	37.93	20.69
Advanced	11.11	16.67	11.11	27.78	33.33
All	7.62	16.19	12.38	38.10	25.71

Statement 10: The greatest impediment to my seeking training in instructional technology is the lack of release time.

	1	2	3	4	5
Beginner	17.24	6.90	13.79	24.14	37.93
Intermediate	12.07	17.24	13.79	39.66	17.24
Advanced	16.67	—	27.78	33.33	22.22
All	14.29	11.43	16.19	34.29	23.81

Statement 11: Some tangible rewards and incentives for spending time developing classroom technology would do more to motivate me than more training.

	1	2	3	4	5
Beginner	20.69	10.34	17.24	31.03	20.69
Intermediate	6.90	13.79	18.97	37.93	22.41
Advanced	22.22	16.67	5.56	22.22	33.33
All	13.33	13.33	16.19	33.33	23.81

Statement 12: The lack of campus grant funds to support the development of instructional technology is a major deterrent to its adoption.

	1	2	3	4	5
Beginner	—	10.34	31.03	44.83	13.79
Intermediate	10.34	15.52	25.86	31.03	17.24
Advanced	5.56	5.56	22.22	44.44	22.22
All	6.67	12.38	26.67	37.14	17.14

Statement 13: The lack of time is the most critical barrier to my experimenting with technology.

	1	2	3	4	5
Beginner	3.45	13.79	—	6.90	75.86
Intermediate	5.17	1.72	5.17	41.38	46.55
Advanced	11.11	—	11.11	33.33	44.44
All	5.71	4.76	4.76	30.48	54.29

- Our choice to use Web-based quizzes was driven by the pedagogical goals of giving frequent evaluations, providing prompt feedback, and giving students the opportunity to revise their work — goals also supported by the Harvard Assessment Seminars.⁴
- Our decision to use a Web-based discussion group with NetForum and, subsequently, WebBoard arose from our desire to encourage interaction between students and build a sense of a cooperative learning community that exists beyond the classroom.
- Chizmar's decision to create a Tango-based, online, student paper publishing system was driven by the goal of giving students a chance to revise and improve their work over time — another goal supported by the Harvard Assessment Seminars⁵ — and motivating students to create authentic finished work.
- Williams' decision to create Web-based tutorials to guide and encourage students in building their own multimedia and Web-based productions arose from the desire to create a learning environment rich in resources and media, which, in turn, gives students the opportunity to create real-world, finished products directly applicable to their future professional needs as multimedia artists.

One key statement on our survey related to Assertion 1: "For instructional technology to be effective, it must first be driven by pedagogical goals." A strong majority (88 percent) of the responding faculty either somewhat agreed (17 percent) or strongly agreed (71 percent) with this statement. (See Statement 1 of the sidebar "Survey of Faculty Needs and Attitudes for Instructional Technology.") This sentiment was shared evenly by beginning, intermediate, and advanced faculty respondents.

Assertion 2. Faculty desire Web-based tools designed for a specific pedagogical task as opposed to a Swiss-Army-knife Web tool designed for many tasks.

We agree with Donovan and Macklin's assertion that faculty want to

"accomplish specific tasks using technologies and want to be able to easily repeat these tasks in subsequent academic quarters."⁶ We also agree with their assertion that "the Web itself, not any one piece of software, [is] the 'killer app.'"⁷

Because Swiss-Army-knife Web tools are designed to accomplish many pedagogical tasks, the designers of these all-in-one tools have to make assumptions about the teaching-learning process — assumptions that many faculty members will oppose. WebCT, Blackboard, and Mallard are examples of these packages.

Our approach uses off-the-shelf or personally developed software capabilities designed to meet specific pedagogical tasks. For example,

- We chose only two tools from the complete Mallard package: powerful quiz generation and management, and an online, personal gradebook. We didn't want features that we knew we wouldn't use because we'd already found an alternative (usually better) way to accomplish a task, such as generating Web-based threaded discussion and feedback through NetForum or the newer Web-based software on our campus, WebBoard.
- Chizmar chose to have a student-paper publishing application created for him based on his need for a tool designed to publish student papers on the Web and to tie each paper to the appropriate instructor-generated rubric and to student-generated reviews.
- Williams' choice of streaming video (initially RealAudio and then RealVideo) was driven by the need for a cost-effective solution to broadcasting reasonable quality video to online students who would receive the materials by modem at home.
- The choice of using AOL Instant Messenger (AIM) as the chat-software application provided Williams with a free and widely accessible chat software that any potential student could access and that worked unobtrusively in the background of the instructor's and online students' workstations.

The response to several statements on our survey support Assertion 2. Slightly more than half (52 percent) of the respondents either somewhat agreed (26 percent) or strongly agreed (27 percent) with the statement, "I prefer to pick the one application I need to solve a specific pedagogical problem rather than having to adopt a Swiss-Army-knife Web tool that does everything." (See Statement 2 of the sidebar.) Again, advanced users were much more likely to strongly agree with this statement. Not surprisingly, 45 percent of beginning users had no opinion about this statement, with the rest evenly distributed among the remaining options. Conversely, 33 percent of respondents either somewhat agreed (19 percent) or strongly agreed (14 percent) with the statement, "I want one 'Web tool' that does everything (such as mail, chat, Web pages, grades, etc.)." (See Statement 3 of the sidebar.) This time, advanced users were much more likely to strongly disagree with this statement, with beginners having no opinion.

While these statistics support Assertion 2, our hypothesis as to why faculty would shun Swiss-Army-knife Web tools turned out to be wrong. Borrowing from Donovan and Macklin,⁸ we included the following statement on our survey: "Most 'Web tools' (such as Mallard and WebCT) simplify the task of creating online instructional materials by making assumptions about the structure and shape of courses and teaching that reduce my flexibility." Only 18 percent of faculty either somewhat agreed (13 percent) or strongly agreed (5 percent) with this statement. (See Statement 4 of the sidebar.) Again, the opinion of advanced users differed markedly from intermediate and beginning users. We believe that the large number of users having no opinion resulted from so few respondents (only 15 percent) actually having used these applications. Additional data from our survey reinforced this assertion. In fact, 63 percent of respondents who've used these applications either somewhat agreed (13 percent) or strongly agreed (50 percent) with Statement 2 ("I prefer to pick the one application I need to solve a specific ped-

agogical problem rather than having to adopt a Swiss-Army-knife Web tool that does everything.”).

Assertion 3. Faculty want to be able to turn to technical experts when they need help in developing a Web-based application that would require technical expertise beyond what should be expected based on the traditional cost-benefit ratio of faculty time.

Chizmar’s decision to turn to the University’s instructional technology unit for help in developing the student-paper publishing system was based on the knowledge that his time would be better spent on more traditional teaching and research activities than in developing the programming skills necessary to work with a Web-based database environment like Tango. This online paper-publishing system is a prime example of the kind of special software modules that can be developed for faculty to meet a specific pedagogical goal.

Following the University of Washington’s lead with the Catalyst project,⁹ Illinois State University’s instructional technology strategic plan recommended the creation of instructional modules that faculty could choose from to add functionality to their teaching Web site by simply selecting from a menu on a Web form. The newly reorganized Faculty Technology Support Services unit on campus has started building such a repository of online tools, templates, and modules. Moreover, when faculty on our campus wanted an alternative to listservs for online discussion groups, we turned to the central host-based services computing staff to set up NetForum for this purpose. Later the campus migrated to the more sophisticated commercial application, WebBoard.

One statement on our survey related to Assertion 3. An overwhelming majority of respondents (83 percent) either somewhat agreed (38 percent) or strongly agreed (45 percent) with the statement, “I seek technical help when I want to know how to accomplish a specific task using technology.”

Advanced users were much more likely to strongly agree with this statement. (See Statement 5 of the sidebar.)

Assertion 4. Faculty desire to interact and compare notes with peers on campus who are involved in instructional technology at a comparable level.

Our approach encounters frequent technology and pedagogical problems, compelling us to compare notes on what works and debate how to make it work when it doesn’t.

■ For the development of the Web-based gradebook and quizzes, we assisted each other in solving the complexities of this system and shared various solutions.

Our approach encounters frequent technology and pedagogical problems, compelling us to compare notes on what works and debate how to make it work when it doesn’t.

■ Williams’ expertise with more complex programming and multimedia techniques is traded against Chizmar’s statistical and survey knowledge, plus classroom research techniques such as his “one-minute paper” student assessment technique.

■ Williams was involved with a campus faculty group that developed a proposal for a faculty instructional technology cooperative where faculty could come together to share experiences and trade expertise with the goal of improving the use of instructional technology on campus. In concept, the co-op resembles the University of Iowa’s “Favor Bank.”¹⁰ The initiative languished for several years, but the Faculty IT Co-op is now up and running under

the sponsorship of the new Faculty Technology Support Service unit.

Two statements on our survey related to Assertion 4. A majority (61 percent) of the respondents either strongly disagreed (41 percent) or somewhat disagreed (20 percent) with the statement, “Demonstrations of the success and failure of other faculty technology projects is a waste of time.” (See Statement 6 of the sidebar.) This time, advanced users were more equivocal. When asked whether they “would like more faculty showcases in instructional technology that demonstrates real-world applications in the classroom,” 63 percent of respondents either somewhat agreed (34 percent) or strongly agreed (29 percent) with this statement. (See Statement 7 of the sidebar.) While 67 percent of advanced users either somewhat agreed (28 percent) or strongly agreed (39 percent) with the statement, it’s also true that 22 percent of advanced users strongly disagreed. No one somewhat disagreed with this statement.

Assertion 5. Faculty desire technical support and network services that are reliable and fast enough to run sophisticated applications efficiently without frustrating students and faculty.

Nothing frustrates students, especially technophobes, more than instructional technology that doesn’t work. When a server is down, e-mail isn’t accessible, or the help desk provides an inappropriate answer, they blame the faculty member who required them to use the software or Internet service. Nothing frustrates faculty more than to assign a Web-based quiz, for example, and then discover that the server is down or that its performance has slowed to a snail’s pace.

When catastrophes strike, trust between student and instructor fades and confidence in instructional technology declines. Faculty desire a network and technical infrastructure that never calls attention to itself, one that doesn’t create barriers to entry for wary faculty and students because of its complexity. The infrastructure should be transparent, much as the utility infrastructure

that powers our lights and our computers — throw the switch and it works!

This past year, Illinois State University's Campus Technology Support Group (CTSG) took positive steps to increase confidence in the campus computer infrastructure with a "Building a Technology Friendly Campus" campaign. This slogan challenged campus technology staff and units to deliver reliable, user-friendly service and support, and sent a strong message to the campus students and faculty that we were trying hard to win their support and confidence.

Two statements on our survey related to Assertion 5. A majority (58 percent) of the faculty either somewhat agreed (34 percent) or strongly agreed (24 percent) with the statement, "I would use more instructional technology in my classes if I felt that there was sufficient support on campus to help me with the implementation." (See Statement 8 of the sidebar.) Beginning users were more likely to agree with this statement than advanced users. Once again, advanced users responded equivocally, with 28 percent strongly disagreeing and 49 percent either somewhat or strongly agreeing with the statement.

A larger majority of respondents (64 percent) either somewhat agreed (38 percent) or strongly agreed (26 percent) with the statement, "The difficulties of knowing where and from whom to seek help on campus create a barrier to the adoption of instructional technology." (See Statement 9 of the sidebar.) Beginning users (76 percent) were more likely to hold this opinion than intermediate (59 percent) and advanced users (61 percent). The bimodal response on this set of survey items can easily be explained by the very different needs of faculty who are novices with this type of technology and those who are more advanced. Novices need lots of support and models to emulate, and are more likely not to know where to turn for help.

Assertion 6. Faculty desire recognition, both monetary and intrinsic, for

developing and using instructional technology in their classrooms.

We've both received a number of Internet teaching grants from our campus that provided some funding to compensate for the extra development time and for software purchases. However, we discovered early on that it's easy to underestimate the time it takes to transfer teaching materials and techniques to new technology delivery systems. In addition, the faculty evaluation system on our campus, as with many other campuses, gives little recognition for instructional innovation when considering promotions and salary increases. We've received support, but the rewards don't equal the final products we produced.

**Nothing frustrates
students, especially
technophobes, more than
instructional technology
that doesn't work.**

As pioneers of Internet teaching on our campus, we were left to support ourselves as we struggled with issues of content, pedagogy, and delivery. Such is the fate of early adopters. We believe that late adopters will require monetary and nonmonetary rewards to adopt instructional technology. At CAUSE97 we stated, "The risk of not having such a reward system in place is few faculty willing to commit the time needed to offer ... courses [that incorporate instructional technology]." ¹¹ This statement is especially true when you consider the pressure on faculty on many campuses to instantly adapt their courses to Internet delivery — a process that requires facing the technology challenges of many of the techniques we implemented over four to five years.

Our campus has put a major emphasis on providing extrinsic rewards to faculty for developing new instruc-

tional technology in support of teaching through the newly reorganized faculty technology center. The most significant program — the State Farm Instructional Technology Fellowship program — pairs faculty with mentors drawn from faculty with advanced technology skills and experience. The experience lasts a year. Starting in the summer, faculty in the program go through intensive one-month training before developing their own materials for the classroom. During the course of the year they continue to work with their appointed mentor in developing materials and using them in their courses. The faculty support center also provides a variety of smaller jump-start grant opportunities, computer literacy stipends, training experiences, and the like. Most of these carry some form of financial remuneration, in the form of salary, software, or hardware.

Several statements on our survey related to Assertion 6. A majority (58 percent) of the faculty either somewhat agreed (34 percent) or strongly agreed (24 percent) with the statement, "The greatest impediment to my seeking training in instructional technology is the lack of release time." (See Statement 10 of the sidebar.) Likewise, a majority of respondents (57 percent) either somewhat agreed (33 percent) or strongly agreed (24 percent) with the statement, "Some tangible rewards and incentives for spending time developing classroom technology would do more to motivate me than more training." (See Statement 11 of the sidebar.)

About the same majority of respondents (54 percent) either somewhat agreed (37 percent) or strongly agreed (17 percent) with the statement, "The lack of campus grant funds to support the development of instructional technology is a major deterrent to its adoption." (See Statement 12 of the sidebar.) Advanced users were more likely to agree (62 percent). A priori, we surmised that most respondents would agree with statements 11 and 12. Consequently, we're surprised both by the smallness of the agreeing groups in

Statements 11 and 12 and the largeness of the dissenting group in Statement 11. Perhaps the real impediment to developing instructional technology is revealed in Statement 13, which shows that 84 percent of faculty somewhat agreed or strongly agreed with the statement, "The lack of time is the most critical barrier to my experimenting with technology." Faculty, like everyone else in the information age, simply have too much to do.

Recommendations

We offer six recommendations tied to each of our technology assertions.

Recommendation 1. Universities should create and provide a selection of Web-based instructional technology modules, each driven by and tied to a specific pedagogical strategy. More specifically, they should create modules or templates that provide presenting, interacting, guiding, and exploring strategies so that faculty members have a diverse array of options to fit both student and instructor needs. Moreover, faculty should be able to easily configure these tools to their class Web sites without learning HTML and Javascript coding.

Recommendation 2. Instructional technology units should invest their efforts in discrete solutions that are mapped to instructional needs and strategies. Swiss-Army-knife solutions like WebCT are useful to faculty not as comprehensive packages, but for their separate parts. Indeed, in lieu of a specific solution, faculty members choose the Web tool that best accomplishes the specific task at hand with the least investment of time. If it meets an instructional technology need, faculty members will use anything they can get their hands on, even a Swiss Army knife.

Recommendation 3. Instructional technology units should invest less of their efforts in solving the technical problems of individual faculty members and more in serving the faculty in general by creating a series of modules

or templates that faculty could choose from to add functionality to their teaching. (The Catalyst Project at the University of Washington offers a good example.)

Recommendation 4. In ways that respect the value of faculty time, campuses need to create venues for faculty to come together to share and trade experiences, development efforts, templates, products, and the like. The Faculty Co-op or Favor Bank ideas mentioned earlier could serve as a model to promote the sharing of faculty expertise for both content and technology.

Recommendation 5. Administrators charged with providing instructional technology leadership must always guard against allowing technology to become dominant. To ensure that technology works flawlessly, it's sometimes better to wait on a software upgrade or change until instructors can make the necessary adjustments to their instructional materials. Further, when technology administrators decide to adopt a new technology, they should over-, not under-, estimate its capacity. If they decide that current budgets aren't sufficient to support a generous level of capacity, they should wait until the necessary funds become available or consider outsourcing.

Recommendation 6. More than ever, faculty need rewards for their instructional development efforts through release time, monetary awards, software and hardware support, and credit in the salary, promotion, and tenure process. Faculty members don't need motivation; they need support. Faculty members have many interests and obligations competing for their time. The incentives structures indicating what our universities value still tilt heavily toward traditional research. Our best advice is to change these traditional incentive structures. *e*

Endnotes:

1. For more details of the survey, see <http://www.arts.ilstu.edu/CAUSE>.

2. J. F. Chizmar and D. B. Williams, "Deconstructing Classroom Technology in Practice: What Our Web Technologies Suggest About What Faculty Want," at CAUSE99, Long Beach (1999); "Internet Delivery of Instruction: Issues of Best Teaching Practice, Administrative Hurdles, and Old-Fashioned Politics," at CAUSE97, Orlando (1997); "Internet Delivery of Instruction: Issues of Best Teaching Practice, Administrative, Hurdles, and Old-fashioned Politics," *Campus-wide Information Systems* 15(5) (1998); "Altering Time and Space through Network Technologies to Enhance Learning," CAUSE/EFFECT 19(3) (1996): pp. 14-21; "Altering Time and Place in Learning Environments through Network Technologies," at CAUSE95 (1995); or visit <http://www.arts.ilstu.edu/CAUSE>.
3. Ibid. (1997).
4. R. J. Light, "Explorations with Students and Faculty about Teaching, Learning, and Student Life," at the Harvard Assessment Seminars, first report (Graduate School of Education and Kennedy School of Government, Cambridge, Mass., 1990) [<http://www.ed.gov/offices/OPE/FIPSE/LessonsII/harv-jfk.html>].
5. Ibid.
6. M. C. Donovan and S. Macklin, "One Size Doesn't Fit All: Designing Scalable, Client-Centered Support for Technology in Teaching," at CAUSE98, Seattle, (1998): p. 11 [<http://www.educause.edu/ir/library/html/cnc9846/cnc9846.html>].
7. Ibid.: p. 8.
8. Ibid.: p. 12.
9. Ibid. See also Donovan and Macklin, "The Catalyst Project: Supporting Networked Education and Creating Community," at EDUCAUSE99, Long Beach (1999) [<http://www.educause.edu/ir/library/html/cem9934.html>].
10. J. S. Huntley, M. Langstaff, S. Otto, and P. A. Soderdahl, "The University of Iowa New Media Coalition: A Network of Campus Partners," presented at EDUCAUSE99, Long Beach, Calif. (1999).
11. Chizmar and Williams (1997).

John F. Chizmar (jchizma@ilstu.edu) is a professor of economics and David B. Williams (dwilliam@ilstu.edu) is Associate Vice President for Information Technology and a professor of music at Illinois State University in Normal, Illinois.

EDUCAUSE

Southeast Regional CONFERENCE

An EDUCAUSE Regional Conference for Information
Technology Professionals in Higher Education

June 27–29, 2001

Caribe Royale Resort Suites and Villas, Orlando, Florida

Developing the Next Generation of Leaders

Join us in Orlando for the first EDUCAUSE Southeast Regional Conference this June.

Higher Ed IT professionals from throughout the Southeast will attend this outstanding program, which features the following tracks:

- Notions of Leadership in Higher Education
 - Leadership Tools
 - The Leading Edge: Information Technologies on the Horizon
 - The Servant Leader: Providing Leading Services in College and University Environments
-



EDUCAUSE

For more information, visit the EDUCAUSE Web site at www.educause.edu