CALIFORNIA COMMUNITY COLLEGES

TIPS News

Technology in Education

TELECOMMUNICATIONS INFRASTRUCTURE PROJECT STATEWIDE

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Universal Design: Making Education Accessible to All Learners

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Center for Applied Special Technology

PART ONE

When Dr. David Rose introduced a Web site (*www.inclusivemedia.net*) featuring digitized movies of the brain into his graduate-level education course on "Neuropsychology, Technology, and Disabilities," remarkable changes began to take place in his students' learning. "The students were getting the information almost one hundred percent faster. They were asking better questions and understanding more, sooner," recalls Dr. Brenda Matthis, a teaching fellow for the course from 1996 to 1999.

Rose had previously relied on traditional textbooks, lectures, and an overhead projector to convey the dense, hard-to-grasp information that is fundamental to understanding how the brain works and how deficits in brain function manifest as disabilities.

When he introduced QuickTime movies to his curriculum, Rose's students were able to examine the brain from "live" perspectives, top-down, cross-sectioned, and in the process of unfolding, to show interior sections. These perspectives were impossible to convey through static, black-and-white textbook illustrations. At the same time, Rose began using a textbook that was available in digital format so students could access it online.

By offering his course materials in several formats (printed textbooks, online

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INSIDE

Online Teaching Web Site Award 2001

The CVC Professional Development Center is pleased to announce the CVC Online Teaching Web Site Award for 2001. The winner will receive a $2500 cash prize to be awarded at the CVC 2001 Online Teaching and Higher Education Conference, October 14-16 in Huntington Beach, California.

In order to qualify for the award, a site must have been used to teach an online course sometime within the 2000-2001 academic year. The award will ordinarily be given to the faculty member teaching the course. However, if other college staff have made substantial contributions to the development of the site, we will be happy to divide the prize in whatever manner seems fair to the nominees. Nominated web sites will be judged on educational content, construction and layout, instructional design, use of multimedia, interactivity and community, and accessibility.

Nominations for the award are being accepted until June 15, 2001. College Presidents, Chief Instructional Officers, Distance Education Coordinators or Administrators, or their designees may nominate courses. A maximum of two nominations per college will be accepted. Faculty interested in nominating their courses should contact the appropriate administrator at their College.

For more details about eligibility requirements, and selection criteria, and last year's winners, please see *http://pdc.cvc.edu/cvcaward*.

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TIPS online *http://video.4c.net/TIPS*

off the wire

LEARNING FROM A DISTANCE - Online on the Rise

Edupage

Of the more than 4,000 two- and four-year colleges in the United States, 70 percent provided online courses last year, a 22 percent rise from 1998, reported Market Retrieval Service.

American Federation of Teachers vice president Bill Scheuerman stressed the need for institutions to approach e-learning with care, saying, "If you're going to do it right, it's going to cost you money." Among the criteria e-learning should meet, Scheuerman suggested training for faculty and 24-hour technical support for both faculty and students.

A recent survey by the AFT revealed that Web-based e-learning is the most common form of distance education, most often used for career or science and math classes, with humanities classes next. Education and child development classes were less likely to be online, the AFT found.

However, not all e-learning classes meet only online. Joe Moran, who coordinates the adult education master's program at Buffalo State College, explained that his institution's program asks students to come to the classroom once a week. Moran said this arrangement lets students interact and work on cooperative assignments, two features that can be lost in a strictly Web-based operation.

(Source: Business First of Buffalo Online)

ONLINE LEARNING NEEDS GOVERNMENT ATTENTION, PANELISTS SAY

Edupage

Panelists at a recent U.S. Distance Learning Association conference said online education could be hampered by the federal government's inability to coordinate support for e-learning. Sparsely populated states see online education as a technology equalizer, said South Dakota Gov. William Janklow. He said his administration has made significant efforts to wire every school in South Dakota. However, he argued that government should regulate online education to some extent because it is growing so fast. Other experts in online education said the Bush administration will likely hand that responsibility to the states, possibly causing a derailment of e-learning's progress as online education standards get muddled.

(Source: Government Executive Magazine)

Faculty: Improve Your Technology Skills!

@ONE hands-on trainings are free to all CCC faculty

The @ONE project is offering one-day, hands-on training sessions on instructional applications of technol-ogy, open to California Community College faculty throughout the state. These workshops are being taught by community college faculty who have been leaders in using technology for teaching.

T R A I N I N G S E S S I O N S

Collaborative Learning Using Online Tools
LA Trade-Tech College - Friday, June 22
Santa Ana College - Thursday, June 28

Using Simulations to Enhance Teaching & Learning
American River College - Monday, June 11
Shasta College - Thursday, June 14
Santa Ana College - Friday, June 29th

Creating an Instructional Website
San Jose City College - Tuesday, June 12

To register for any of the training sessions, visit the @ONE web site:

http://one.fhda.edu

@ONE is a California Community College project funded by the Chancellor's Office Telecommunications and Technology Infrastructure Program (TTIP).

@ONE's mission is to assist California Community College faculty and staff in their efforts to enhance student learning and success through expanded uses of effective technology, by providing training, resources, and support.

2001 TECHNOLOGY AWARDS

The Technology 2001 Awards are to recognize excellence that evolves out of a comprehensive planning process closely linked to the institution's mission and vision for the future. It reflects strategic, integrated uses of technology to empower faculty, students, and administrators and bring new information resources within reach of all campus constituents, and often the wider community.

Technology Leadership Awards

- Kristina Kauffman, Riverside CCD
- Michael Loceff, Foothill College

TIPS Newsletter Awards

- *"Online Advising - Two Models"*
  Belen Torres-Gil, Rio Hondo College
  Nicholar Chang, City College of San Francisco

Technology Focus Awards

- *DeltaOnline - The Creation of an Online Program*
  San Juaquin Delta College
- *The F.A.S.T. Online Faculty Academy*
  Diablo Valley College
- *The MySite Project*
  South Orange County DDC
- *Professional Development Center Online*
  Las Positas College

CONGRATULATIONS to the WINNERS!

The Educational Applications of Streaming Audio

Accessible, Do-It-Yourself Multimedia

Grover Furr
Associate Professor of English and Comparative Literature,
Montclair State University

The term "multimedia on the web" evokes expectations of web-based presentations with sound and video. Although significant barriers exist today for the professor or teacher who wishes to create his or her own audio/video course content, streaming audio alone (sound without video) is a web-based technology that is available today. It is easy to learn, inexpensive to produce, and available to off-campus students with only a 28.8 Kb connection to the Internet.

During the summer of 1999, I learned how to produce web-based multimedia presentations for my classes. I had seen such presentations on corporate sites in the form of "streaming media." They looked and sounded very good when I viewed them over my university's T1 Internet connection.

After spending a week making some very simple files, however, I decided not to proceed further with streaming audio/video (A/V) for two reasons. First, producing all but the simplest streaming video requires considerable technical skill. Although it is easy to "capture" (convert from VHS videotape format to digitized file format) a straightforward video clip, the editing skills (cutting, splicing, fade-in and fade-out, adding titles and captions, synchronizing with sound, and so on) needed for all but the simplest videos require considerable practice and time to learn.

> *"Streaming audio helps enhance the benefits of traditional lectures while eliminating some of their drawbacks."*

Second, A/V files are too large to stream fluently over a modem connection to the Internet, whether the modem is 28.8 or 56 Kb. There are many pauses in the streaming process, and the video motion is jerky, making presentations unusable in a course for students who prefer to work off-campus and who have only a modem connection to the Internet. Though these problems are eliminated when the A/V file is viewed in an on-campus computer lab, I felt I could not justify forcing my students to use already overcrowded labs rather than their own home computers.

However, I discovered that while A/V presentations did not stream to a 28.8 Kb modem connection fluently enough to be usable, audio presentations did stream very well when viewed at all but the busiest Internet times. Furthermore, the software required to create the digitized streaming audio files is free, as is the software required to listen to them. Finally, the software is very easy to use; a teacher can make a streaming audio file after only 10 minutes of practice.

What Is Streaming Audio?

"Streaming audio" refers to a file format and software that permits a long audio (or A/V) file to be played without the listener's having to first download the entire file, a process that could take an hour or more and occupy several megabytes of drive space in the case of a long lecture. A quarter- or half-minute of the file is preloaded into a "buffer," which the player software uses while more of the file is streamed in advance. This buffer permits a very long file to be played continuously after only a few seconds delay.

There are several formats for streaming audio. I use the RealAudio [.rm] format, the current industry standard.

Why Stream Rather Than Download the Audio Files?

Sound files can be made in many formats other than RealAudio's Streaming RM format, but I prefer streaming for several reasons. RealAudio files can be played almost immediately, without being downloaded in their entirety first. In the event that web use is heavy and even an RM file does not stream fluently enough, the student can simply download the file to his/her hard drive and play it with complete fluency thereafter. The professor need only provide students with a direct hyperlink to the file. RM files are up to 40 times smaller than sound files in other formats. They can be downloaded more quickly, and they take up less space, with little or no perceptible loss of sound quality. Many college computer labs, such as those at my institution, do not permit students to download anything onto them. RealPlayer now comes bundled as a plug-in with the free Netscape Navigator and is easy to download and install by itself. Users of older versions of Netscape Navigator and of Microsoft's Internet Explorer can download it from the Real.com site.

Using Streaming Audio in the Classroom

At present, I use streaming audio in three ways:

Sound samples - For example, in my Middle English Literature class, I can demonstrate various modern experts' oral interpretations of Middle English texts, such as the opening of Sir Gawain and the Green Knight, read by a scholar from the University of Georgia.

Lectures - Some lectures are already freely available in streaming audio format on the web, such as a discussion of Ebonics featuring Professor Richard Wright of Howard University's Linguistics Department.

Supplementary material - Some of my own lectures are available, such as "The Medieval World-View."

I have found that making my own lectures available to students for remote listening and study has been most beneficial to my classes. Years ago, I basically abandoned formal lecturing because it allowed students to be too passive, and I changed my teaching style to emphasize small-group work. During class, students work in groups of four to six, beginning with assignments I have already given to them over the web. I act as a mentor, going from group to group to ask questions, refocusing discussion when needed, and listening a lot. Most classes end with the whole class in one large circle, engaging in a group discussion, during which students share the results of their small-group discussions.

But while streaming audio has transformed my classroom, there is still some material I prefer to present in lecture format. I could just write out the material, make it available on the web as yet another reading assignment, and do without lectures altogether. However, lectures allow students to hear a real voice behind the material, and learn to make notes from a talk rather than from a text. Presenting material in a variety of formats such as this can lead to better learning, or at least to a different way of learning.

Streaming audio helps enhance the benefits of traditional lectures while eliminating some of their drawbacks. For example, I dislike the passivity of students as they listen to an extended in-class presentation and resent spending precious classroom hours in this way. Streaming audio makes it possible to present a lecture without taking up classroom time with a lecture. Furthermore, streaming audio challenges the inherent authoritarian nature of the traditional lecture format, which typically allows little time for interactive question-and-answer or discussion in a large group.

I have made streaming audio files of each of the lectures I used in the fall of 1999. I assign the lectures as homework so that my students can listen to them whenever they want. All lectures are available as links on the course web page. Students can pause, back up, and replay the lectures, or parts of them, as many times as they wish so that they can make notes, answer the telephone, make a cup of coffee, and so on. With more time to assimilate the lecture material, they can also think more critically about it˜an activity that should be encouraged.

> *"At the next class, students are well prepared to discuss the lecture's content, raising questions and criticisms with each other."*

Using Virtual Handouts

I compose web pages for use in conjunction with each lecture, much as I used to make up handouts. It's easy to make simple diagrams with a basic graphics program like Windows Paint and include them in the web handouts. Students can either look at these pages online while listening to the lecture or print the handouts and write their lecture notes directly on them.

I assign each lecture with its accompanying web page handout as homework, along with a writing assignment based on the lecture. My students listen to the lecture, making notes and studying the handout. They then complete the writing assignment, which they e-mail to the other members of their discussion group and to me. I keep it for grading purposes. Each student has to read at least one or two of their groupmates' assignments.

At the next class, students are well prepared to discuss the lecture,s contents, raising questions and criticisms with each other. They spend class time discussing and interacting with

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Universal Design

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textbooks, online lecture notes, QuickTime movies, and videotapes of all lectures) Rose was providing his students with multiple representations of information. This is a fundamental principle of Universal Design for Learning, an innovative approach to education pioneered by CAST (Center for Applied Special Technology) a non-profit organization based in Peabody, Massachusetts. "For the first time, the students had a menu of different ways to get the information" recalls Rose. "The challenge is that you have to be prepared to give them more when they're ready for it."

In fact, the entire course began shifting. For Rose, having the Web site was like having another teacher in the room, and suddenly he was scrambling to adapt his teaching style so that it would complement the other approaches he was using. "At what point do you stop lecturing and start using the Web site?" he asked himself.

A lecturer at the Harvard Graduate School of Education since 1985, David Rose is also co-director of CAST, leading research efforts on ways to use technology to expand opportunities for diverse learners, including those with disabilities. CAST has found that the principles of universal design, drawn from architecture and product development, are useful for creating effective educational tools. Architects practicing universal design build structures that accommodate the widest spectrum of users possible, including those with disabilities. In universally designed physical environments, adaptability is subtly integrated into the design.

Designing for the divergent needs of "special" populations increases usability for everyone. A classic example is the ramped curb cut, which was originally designed for people in wheelchairs. Now, curb cuts also make the way easier for those who are pushing baby carriages, using canes, riding skateboards, or just walking.

Universal Design for Learning

The concept of Universal Design for Learning (UDL) has evolved from the simultaneous emergence of new knowledge about the brain and new technologies for learning and communication. Neuro-imaging techniques such as positron emission technology (PET) scans have enabled researchers to better understand the neurological basis for learner differences. At the same time, networked multimedia tools and content are now supporting the creation of flexible curricula in ways that were never before possible.

UDL extends the architectural concept of universal design to create a new paradigm for teaching, learning, and developing curriculum materials. In the process, old assumptions about learning and teaching are challenged in four key ways:

- Educators see students with disabilities along a continuum of learner differences rather than as a separate category.
- Teachers adjust the curriculum to accommodate learner differences for all students, not only for those with disabilities.
- Curriculum materials include digital and online resources in addition to textbooks.
- Curricula are more flexible and accommodate a wide range of learner differences, instead of providing remedial help so that students can learn from a set curriculum.

Part Two: Providing multiple options for content, expressing knowledge, and engaging learners

Streaming Audio

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each other and with me rather than sitting back passively listening or making notes without discussing or interacting. I also use web discussion forums provided in Microsoft FrontPage 98 on a FrontPage server, real-time IRC Chat on our MSU IRC server, and e-mail distribution groups (like small mailing lists) to encourage further critical discussion.

Conclusion

I was surprised that student responses to my full integration of streaming audio into my Fall 1999 courses were so positive. Most students appreciated the fact that they could pause the lectures or even listen to them more than once. I am continuing to use streaming audio and have begun to collect some guest lectures for use in future classes, always making sure to get permission from my guest lecturer to put the talk on the web.

Using the Internet can make teaching more interactive; more focused on critical thinking, discussion, and problem-solving; and less concerned with assimilation and retention of information. With this simple and cheap streaming audio technology, I can use all of my class time to enhance student-centered, interactive education. I recommend the technology to anyone who wants to enhance his/her teaching.

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http://horizon.unc.edu/TS/

Why Distance Education Will Fail and Harm Higher Education?

Dr. Farhad Saba
Professor of Educational Technology,
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Over the past five years, those of us who have been in the field of distance education for thirty years have been witnesses to an unbelievable spectacle. And for the third time in fifty years distance education has been touted as the elixir that will cure all the ills in education and training. However, what is different is that never before has this much attention, money, publicity, and hope been invested in its practice in business and education.

For example, I have seen waves of articles about why education at a distance would fail twice in my professional lifetime, so in anticipation of a third wave I am rushing to be the trendsetter!

The failure is not of technology, or poor instructional design alone, although there is room for both to improve. The problem resides where technology, instructional design and the organizational structure of the university converge.

The insistence of higher education to use distance education within the confines of its existing organization aggravates its current systemic problems, while solving very few of them if any at all.

Cost

One of the major reasons to adopt technology in any institution is to reduce costs. Despite billions of dollars of direct and indirect investment in technology in higher education, there has been a steady increase in tuition and fees for students, which have been well above the rate of inflation in the past decade. In the mean time, there has been a great reluctance on the part of many administrators, and academic governing bodies to increase the number of enrollments for online courses. Many online courses are taught with 20 to 25 students enrolled in them, numbers that are nowhere near making such courses independently sustainable. Therefore, distance education courses are heavily subsidized, and in some cases cost more than the comparable class on campus.

Time-to-degree

Students in popular state institutions spend more than four years completing their degree requirements. The primary reasons are many students, who increasingly have to work to support a family, have to wait their turn to find a seat in required classes that are full. The irony of this is most online courses are designed based on this model and are sure to have waiting lists for them too. This model dismisses the major benefit education at a distance can offer: mainly individualized instruction. And students are still locked into the same sequence as their peers in the classroom.

Competency

There is no standard of competency for those who design and implement distance education systems in higher education or in business and industry for that matter. In a few instances when unskilled but entrepreneurial faculty have tried to deal with these problems, the results have been catastrophic. On my campus, a colleague who had no training in the field of distance education managed to sign a multi-thousand dollar agreement with the university to provide what seemed to be individualized instruction to a relatively large number of students. To make a long story short, the university has terminated his contract, and the faculty has launched a law suit against the university.

These three examples are enough to illustrate distance education is going to be another opportunity missed for advancing and meeting the needs of the students as long as it is used in the confines of an out of date organizational structure that has not changed much for well over a century.

Distance education should not try to replicate the classroom experience online. It is a new system of relationships between instructors and their students. Using technology to teach requires a professional staff of instructional designers, media specialists, programmers and others to support the faculty in providing individualized instruction to each student.

For example, this is somewhat similar to physicians who are supported by nurses, and various paramedical professions to provide individual attention to patients. Imagine a hospital that had arbitrary similar treatment for every 25 patients who walked in through the door!

Again I cannot stress enough that technology in distance education is not to replicate the classroom experience for the student. It is to make the personal instructor-learner relationship stronger, and provide a dynamic time-space where students and instructors can communicate with each other. And

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Point of View

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this communication changes in time during the course of an instructional session based on how much structure the faculty must impose on the instructional learning experience to lead the learner and how much autonomy the learner is comfortable with in order to achieve his or her goals.

Time will only tell the future of this new wave of optimism surrounding the field of distance education and it remains to be seen whether it will succeed or fail. And it depends on the road we choose to follow. We have two choices: will we follow the road where faculty and administrators are willing to implement distance education systems according to the body of knowledge in the field, or the road where we try to replicate the classroom online.

I believe if we follow the road where technology is used to reduce the cost of education, and speed-up time-to-degree for students, while making education more personal, it might succeed.

Its success, however, does not depend on better technology or better instruction by faculty alone, but depends on the massive reorganization of the university in the scale of what the business and industry managed to achieve during the 1990's.

In other words, using post-industrial technologies, within the confines of an industrial organization are not going to show any beneficial results, and it may even intensify the current problems and damage the institution.

Organizational Change

The recession of the early 1990's prompted several state governors to take a serious look at how they could serve an increasing number of students, with their dwindling resources. At the same time, business and industry was going through a massive reorganization to become leaner, and more productive by adopting high technology.

Summary

Distance education has a rich history that should not be ignored.

As professionals in the field we have an obligation to take an active role in providing direction in the current market frenzy.

Remember, replicating the classroom online won't work, but using the technology to provide a personalized, rich experience can.

www.distance-educator.com

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