IT TIMES

'93 Celebrating a Decade of Technology at UC Davis '03

I f you were on campus ten years ago, you may have caught the first few issues of *IT Times*. But more importantly, no matter where you were, you were probably getting your first desktop computer, writing your first few emails, or noticing technology becoming more a part of your home and your workplace. In this issue, we celebrate not only the ten–year anniversary of *IT Times*, but also a decade of technology services on campus. Each article in this Special Edition is an update of an article that appeared in *IT Times* ten years ago. You can visit *IT Times* online (*http://ittimes.ucdavis.edu/*) to read more old and new articles, which we think combine to tell a story of surprising but steady change at UC Davis.

Ten Years of Educational Technology Development
A Lesson in Institutional Transformation

by **Harry R. Matthews, Director of IET–Mediaworks, and Professor of Biological Chemistry**

In 1993, *IT Times* reported on the pioneering and evangelizing work of a few visionary faculty members exemplified by Geoffrey Wandesforde-Smith (now an Associate Professor of Political Science). The articles identified important pioneers and highlighted their efforts to adopt and adapt information technology for educational purposes.

Ten years later, this article explores the path leading from these pioneering efforts to our current recognition that technology, even as it continues to evolve and present new challenges, is an essential teaching tool.

Emergence of Pioneers

The pioneers are those who first developed ways to use technology in teaching. They were highly independent people acting outside of institutional norms to develop a vision that was its own reward. UC Davis was fortunate to have had several such individuals in the early 1990s.

The pioneers had diverse goals related to student learning or access to courses, and many of the pioneers' projects flowered in a variety of forms. One projected to the creation of a new online journal. In another, faculty were allowed and encouraged to make unrestricted use of server space at the Teaching Resources Center for the development of online course materials. And in a third case, course structures were changed to add computer labs to traditional lecture courses, so that students could learn how to make and manage Web sites. However, the effects of these experimental projects were necessarily isolated and, for some, fleeting. Certainly, students drew some benefit from these projects but, without incorporation into the fabric of the institution, these nice demonstrations would not have lasting impacts.

Community Involvement

In 1994, three faculty pioneers, Art Huntley, Dick Walters, and Geoffrey Wandesforde-Smith, along with Frank Samaniego, a visionary Director of the Teaching Resources Center, created the Summer Institute for Technology in Teaching (SITT). This program has run annually since then and has been used as a model for similar programs at other institutions. SITT brought together an eclectic collection of pioneers and early adopters from all over campus, many of whom had no like-minded colleagues in their local or subject areas. The Summer Institute created a cross-campus community in which best practices were shared and fostered. Before the Summer Institute, the pioneers were mostly "lone rangers" striking out on their own. The community created by the Summer Institute reinforced the vision and helped to focus it, leading to institutional recognition.

Selective Institutional Support

Institutional recognition of a community's interest and early involvement in educational technology, along with the aid of appropriate staff members, can lead to the development of a small number of well-supported projects, sometimes called "boutique" projects. At UC Davis, a faculty support unit headed by Margaret Byrne, from IT, provided significant institutional resources for the development of three such projects. One of these was an online communication tool and the other two were online courses. In 1997, the redesign of the Cell & Molecular Biology course was described on a Microsoft CD called "Technology Tools for Today's Campuses." Later, all three projects were included in the book, "Interactive Learning," edited by David Brown of Wake Forest University. Brown's book and the associated conference led to further interaction with the national and international community (*http://moby.ucdavis.edu/Mellon/publications.html*). UC Davis had now found its place on the international educational technology map. Two of these projects are now deployed and undergoing continued development at UC Davis.

> **"UC Davis had now found its place on the international educational technology map."**

For a history of Educational Technology at UC Davis (presented in DVD format and shown above), you can visit Mediaworks in Surge II where the DVD may be viewed or borrowed for faculty or staff use.

Researching Cost-Effectiveness

Although "boutique" projects tend to be better developed and more visible than "lone ranger" projects, they don't often enter the mainstream of institutional life. It was unclear whether their replication across the institution would be cost-effective. So, while the three "boutique" projects at UC Davis were successful, only anecdotal evidence could attest to their value, and their impact remained limited. Scaling up a "boutique" project or approach requires showing that it can be both effective and financially viable. On a small scale, financial viability is not so crucial if the institution finds the project effective enough to warrant its cost. However, on a large scale, the approach must be cost-effective over a variety of disciplinary areas or the institution will not be able to afford it.

In 1999, the Andrew W. Mellon Foundation solicited grant applications from universities interested in researching the cost-effectiveness of online education. A multi-disciplinary team of investigators secured a grant for UC Davis. The UC Davis Mellon research program studied 10 different general education courses in areas as diverse as Agricultural Economics and Asian Art History. The Mellon program compared the costs of online courses with those for traditional face-to-face courses. Most of the UC Davis courses in the study were hybrids, in which part of the course, typically the lecture material, was placed online, while other parts such as office hours and discussion sections, remained face-to-face. Usually, each course was offered simultaneously in both formats – traditional and hybrid – and students chose one or the other. The research team then measured educational effectiveness and costs for both offerings and compared them. Educational effectiveness was measured using the grades on the in-class examinations, written questionnaires, and focus groups. The team also took into account the amount of faculty time spent on the hybrid courses.

The results of the study revealed that student performance was found to be almost the same for both delivery methods, with the traditional method only slightly better. This is a remarkable result, considering that this was the first round for the online version, while the traditional version had been polished over many years. Further study is needed to determine if subsequent development of hybrid courses can make them more effective. The cost study generally indicated a small savings over the life of the course for the online version. Costs for online and traditional courses scale differently: the costs for the online method increases more slowly than those for the traditional version. The net result from the research is that online content delivery can be a cost-effective alternative to a traditional lecture in the UC Davis undergraduate environment.

IT Times in

'98

"We're still a long way from plug and play. It's much more a matter of plug and pray."

–John Stenzel in the article, Computer Literacy: It's a Two-Way Street

Meeting Institutional Challenges

Institutionalization develops out of addressing important institutional problems. At Davis, the main institutional challenge has been maintaining educational quality in the face of rising enrollments and limited physical resources.

Developing an Institutional Structure

In 1998, UC Davis created a new advisory structure for information technology, which included an advisory coordinating committee for academic computing, known as the AC4 (*http://ac4.ucdavis.edu/*). This committee brought together senior administrators, faculty, students, and staff from across the campus. The AC4 also facilitated the creation of the team that submitted the Mellon grant application. More recently, it has provided a forum and served as a catalyst for the dissemination of the Mellon research results and the adoption of online technology at the institutional level.

Creating Dedicated Champions

Institutionalization of educational technology also requires champions, and in particular champions who are respected on technical, administrative and pedagogical issues, and can integrate these points of view. The new institutional structure and the Mellon program provided the basis for the formation of an effective champion at UC Davis. In July 2000, John Bruno, the Vice-Provost for Information and Educational Technology, created a new unit, now called Mediaworks. An educational technology group was formed as part of the unit. This group developed the educational technology used in the Mellon project and have also applied it to a major chemistry course and a major psychology course, thus benefiting most students on campus. Working in collaboration with the deans, Mediaworks provides the infrastructure for widespread cost-effective use of educational technology at UC Davis.

Fostering Future Progress

Ten years ago, the campus was starting to emerge from a period of major budget reductions. Today, we are entering another similar period. For some, being the "new kid on the block" might make educational technology a particularly vulnerable target for cuts. On the other hand, educational technology provides a cost-effective solution to a number of problems the campus needs to address, including waiting lists for classes, summer session classes, limited number of classrooms, large (impersonal) classes, and student expectations for technology use.

Whether educational technology fares well or badly in the current climate, it is surely destined to become a greater part of the teaching, learning, and assessment landscape at Davis over the next ten years. The educational subcommittee of the AC4 is debating the vision for 2013 and while there are differences of opinion over the rates of change, there is agreement that educational technology will grow. As we face competition in the offering of courses, our own courses will continue to improve, but more fundamentally we need to think about "the Davis experience," those factors that make a Davis education unique and valuable, an experience not yet captured on a transcript but that will last a lifetime.

The next ten years will force us to articulate, assess and improve these intangible contributions that we make to students' lives. Perhaps it is in these areas that the current crop of pioneers will emerge. We must strive to recognize them and encourage them, as was done ten years ago in *IT Times*, in this Special Edition, and in new ways to come.

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Reflections of a Pioneering Professor
Adventures in Educational Technology

By Geoffrey Wandeforde-Smith, Associate Professor of Political Science

Like many UC Davis faculty in the social sciences and humanities, I'm a great believer in term papers as learning tools, and have always required them. But tracking and grading an average of 100 student papers in large upper division classes is a challenge.

In 1991, persuaded that email could speed the iterative evaluation of student drafts and rewrites, I tried using it not only for personal communications but also for this new purpose. This caused some consternation and resentment, because neither personal computers nor email were then widely deployed on campus outside of the sciences and engineering. I worked to change this state of affairs with Joan Gargano and Ken Weiss, whose job it was to promote educational uses of distributed computing.

Because they thought I was curious and a risk-taker, Gargano and Weiss introduced me (in 1993, I think), to what was then called the World Wide Web. At the time, the Web browser was a "stand-alone" application. I sensed immediately, however, that once the Web became integrated with email, as well as with spreadsheet applications, word processors, and presentation programs like PowerPoint, neither teaching nor learning would ever be the same again.

> **"Most faculty will and should insist on trusting their own instincts as they approach the integration of technology into their teaching."**

This was a vision shared by those of us who established the Summer Institute on Technology in Teaching (SITT) in 1994 and by many, though not all, of those who became SITT alumni/ae. Because the learning curve for using the Web was steep – good Web editing programs were only three or four years old and faculty had no direct and unrestricted access to servers in 1994 – PowerPoint became (and remains to this day for the vast majority of faculty) the teaching technology of choice. It is an obvious improvement over the chalkboard for organizing and presenting lecture outlines.

Moreover, Web browsers did not immediately become integrated with other tools on a PC platform. They work painfully slowly over a modem connection. And, if one wanted to develop or have students develop Web pages and Web sites as expanded alternatives to lecture notes and term papers, there were still other obstacles to consider.

Classrooms were not equipped in the early 1990s in ways that made it easy or pleasant to use the Web (or even PowerPoint) for teaching purposes. The first projectors installed in some of the larger lecture rooms in 1997 (though often without good roll-down screens) were crude and clumsy, and connecting them to the network was a nightmare. Laptops were a scarce faculty resource, although now just about anyone who wants one can have one, and they are a standard supplement (or alternative) to desktop machines.

Today, because large numbers of faculty have insisted on it, the vast majority of classrooms have media cabinets, first installed in 1999. The Smart Panel in the media cabinet connects a laptop to the network (by dynamic host configuration since 2001) and a new generation of high quality projectors display material stored on the laptop or gathered, almost instantaneously over high–speed network connections, from servers that can literally be located either just around the corner or in any other corner of the world.

Because of a chance remark made to me by a colleague (who shall remain nameless) about how insane I was to imagine in 1991 that technology could have a profound effect on my own work and that of my students and other faculty, I have always trusted strongly my own instincts about using technology. For my colleague, on the other hand, trusting his instincts meant ignoring technology for as long as he possibly could. But I firmly believe that most faculty will and should insist on trusting their own instincts as they approach the integration of technology into their teaching. Technologies are of no value for educational enterprises unless we can imagine a use for them and are prepared to learn how they work.

For me, the first rule is that I will never use something that my students can not also use. In my Law and Policy courses, I teach students to make Web pages and manage Web sites for their own research and writing in the same way that I use the Web to deliver instruction.

My second rule has been to proceed incrementally, never adopting a technology that made me uncomfortable (like Adobe Photoshop, which I would love to be able to use but can't, yet). I try to mix and match tools in ways that make sense to me – even though they may not be recommended by "experts" or manuals or advocates of pre-packaged "solutions" to pedagogical problems they think I ought to have.

The net result, over a decade, now, has been a succession of embarrassments and dead-ends, as technology itself has changed and not always in keeping with my own limited skills. But I also have a substantial body of work to show for my explorations in educational technology. I keep links to successive versions of my syllabi and some of the best student work at *http://psclasses.ucdavis.edu/GAWS/best.htm*. If you visit, you'll notice that everything created prior to 1997 has been removed, either because it would now seem so crude and unattractive or because I can no longer make it work – a sure and certain indicator of how fast we all have to keep running to keep ourselves, our students, and the campus ahead of the curve. ◘

Bringing Facts and Figures to Life
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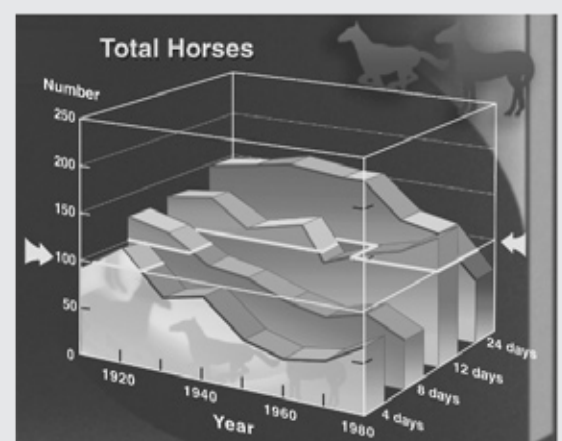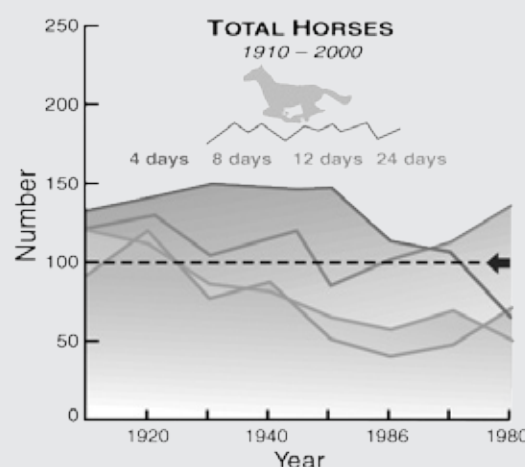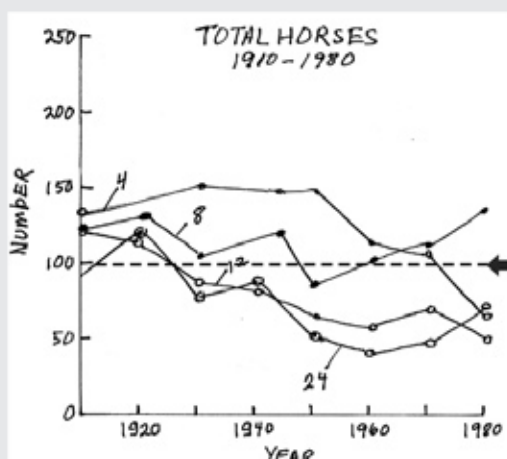
When students and professors conduct research, publish books or give presentations, they have the burden of conveying complicated data or concepts in an organized and lucid manner. Illustrations, graphs, maps, and charts are often used to bring ideas and numbers to life. As technology has advanced, so have the methods for helping scholars present their information via illustrative means. Above, we used work by Claudia Graham, Mediaworks Artist, to illustrate the evolution of educational graphics in classrooms on campus over the years. For more information on getting help with graphics and course materials, contact Mediaworks at 752-2133.

How to Email Yourself into the Witness Protection Program
Netiquette for the 21st Century

by Nancy Harrington

Q: What has one eye and lurks in your office waiting to scare you to death?
A: Email!

Okay. I should have said "one i" instead of "one eye," but you get the idea. Email is such a personal and demanding part of our daily routine, it can feel like we've neglected a close friend when we leave it unchecked for a day. It's also one of those technologies we love to hate, and yet it has become an integral part of our work and personal lives.

Ten years ago, few of us even had home computers, let alone personal email accounts.

Email was new enough then that it hadn't really replaced the paper versions of official communications at work. We needed special guidance to tell us how to communicate appropriately through email.

Witness the Netiquette articles in the *IT Times* of the early 90s. And guess what! That guidance still applies:

1. Advice from the 90s: Use the Appropriate Degree of Formality ("Take time to make sure no electronic communication embarrasses you later"). There's some advice many of us regret having overlooked! It takes just one caustic remark coupled with the use of the 'reply to all' feature to make us glad for the existence of witness protection programs. Organization officials and attorneys who once may have overlooked electronic communications when conducting investigations now include it routinely. Emails are considered official communications and are discoverable in terms of legal proceedings. There is more than embarrassment at stake these days. **Updated Advice: Don't write anything in email you wouldn't want to read aloud in court.**

2. Advice from the 90s: Summarize What You Are Responding To ("When posting a response, summarize the parts of a message or article to which you are responding"). Always a good idea, especially when dealing with those of us—a growing number I might add–for whom every movie is a double feature! This is fairly easy advice to follow since the 'reply' function often automatically includes the text of the original message and all the ensuing correspondence. Although this sometimes means receiving an email the size of New Jersey, it's better to see the whole picture before jumping into the fray with a response. The 'reply' function has the added advantage of keeping the same title throughout the correspondence, making it easier to locate all messages on a given topic. **Updated Advice: Include the original and ensuing correspondence in your replies, and don't change the subject line.**

3. **Advice from the 90s: Keep Paragraphs and Messages Short and to the Point** ("Make your messages 'concise,' not cryptic"). Sing it, sister! Now that email is a major rather than minor form of communication, some of us (and I'm not mentioning any names here) haven't figured out that it isn't the best format for delivering philosophical treatises. What, I ask you, is more dismaying than being confronted with an email message that requires the use of the scroll button, three times? One practical way you can keep emails short is to simply reference a Web page where more information resides, rather than recreating all the info in the text of your email. If this doesn't

work you might also attach a document with more info, or even suggest a follow-up phone call. **Updated Advice: Make your messages 'concise,' not cryptic. (Some things just don't change.)**

4. Advice from the 90s: Be Careful with Humor and Sarcasm ("…make sure people realize you are trying to be funny"). Since people can't see your red rubber nose and big, floppy shoes when they get your emails, they really don't know how funny you can be! It still pays to give a clear signal when you're making a joke or being facetious. Typing in one of those happy faces will do, I suppose, but it's much better to use clear, careful language. A more salient point is that not everyone wishes to be amused by their daily deluge of email. Therefore, it is not essential that you forward every humorous or pseudo-humorous email to all your friends and acquaintants. **Updated Advice: Severely limit the number of frivolous emails you send or forward.**

Is there any new advice for the use of email in 2003? Get to know and use the powerful features of email. One that springs to mind is the filtering feature. It can help you sort and organize your correspondence and even dispose of emails from all those folks who don't take the advice offered above (I am not wearing my rubber nose and floppy shoes as I write this).To update your email know-how, visit *http://email.ucdavis.edu/* or consider taking the classes on Email Liability and Electronic Communications Essentials offered by Staff Development and Professional Services (*http://sdps.ucdavis.edu/*).

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A Decade of Computing Security

1991
The World Wide Web, Linux, America Online, Windows 3.1 and the first polymorphic computer viruses arrive.

1992
The newly-formed IT organization at UC Davis begins issuing free email accounts to all faculty, students and staff.

1993
Kevin Mitnick becomes the first computer hacker to make the FBI's 10 Most wanted fugitives list.

1994
Citibank is hacked.
As e-commerce warms up, hackers begin looking for credit card and identity information.
Pizza Hut initiates Web-based ordering system.
"Good Times" virus hoax circulates through Internet email.

1995
Hackers discover an SSL flaw in Netscape.
Kevin Mitnick is arrested and later pleads guilty to seven counts of wire fraud, computer fraud and illegal interception of a wire communication.

1996
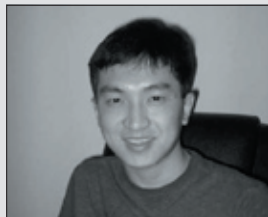Kerberos password is implemented automatically on all new UC Davis email accounts.

How Were You Using T

I got my first computer and began doing what I am still doing today: playing nethack/moria."
—*Leng Siakkhasone, staff*

Then, we had to use our imagination to predict what communications and research would be like. Today, the places we can virtually visit or the people we can virtually interact with are limited only by our imaginations."
—*Andy Jones, Lecturer*

Security Challenges Continue
UC Davis' IT Security Coordinator Looks Ahead
by Robert Ono

IT Times in '95

"Hold the mouse loosely; not in a death grip"
--from an article titled *Fifteen Ways to Practice Safe Computing*

Who would have believed ten years ago that we would now take for granted the many conveniences of email, high-speed Internet connections, and the ability to reach deep into the Internet community? Yet these capabilities became prevalent in an amazingly short period of time, as have a number of new computer security issues.

If there is a common theme running through the history of these computer security issues, it is that computers and networks continue to be threatened on a regular basis. However, the nature of the threats has changed over time. Prior to the 1990s, file and boot sector viruses spread via diskettes were a major concern. Then, during the 1990s, viruses became more efficient, transmitting themselves via email and network connections, causing widespread computer infections. Next, in the late 1990s, Internet worms and broad denial-of-service attacks became a pressing threat. In the past few years, as more personal information is collected electronically, identity theft has become a significant security issue for both organizations and individuals who may wonder about the integrity of their social security number, credit card information, or other personal data. And most recently, international tensions reveal that the information technology we so heavily depend upon could be considered our greatest and most exploitable vulnerability.

What are we doing on campus to encourage the integrity and appropriate level of confidentiality for electronic information? The campus recognizes that no single security measure can be a panacea. Rather, information security requires a rainbow of preventive measures, including but not limited to routine assessments, detection and investigation of computer incidents when they occur, and measures supporting the recovery of compromised computing systems. Currently UC Davis is working towards a secure environment by:

- Providing technical education opportunities that promote secure information practices and help to prevent security incidents. In June, the campus will host its first IT security technical and management education opportunity with the UC Davis IT Security Symposium (*http://ietsymposia.ucdavis.edu/security/index.cfm*).
- Providing security assessment guidance, risk assessment guidance, and campus security alerts via the security Web site (*http://security.ucdavis.edu/*).
- Developing greater analysis capability for hostile network traffic.
- Developing an incident reporting function that can accept human reported incidents and automated reports to create campus advisories.
- Developing authentication services and intrusion detection capabilities consistent with strategies recommended in previous technology projects.

Looking Ahead…

How will the information security challenges on and off-campus change in the next ten years? Already we are seeing security technology stepping up to confront the latest problems. For example, new applications can remove malicious code from personal digital assistants and may soon expand to protect cellular phones as well. Microsoft has indicated their interest in developing special hardware that works with operating systems to provide greater security. Anti-virus vendors are moving to respond to blended threats – malicious code that can take advantage of multiple vectors and rapidly evolve to avoid detection. In addition to relying on security technology, information security will continue to be dependent on education and awareness programs.

As a final thought, we are likely to see more federal and state laws impacting the use of information technology – as one example, many are looking to federal legislation to reduce the spam that floods many of our email inboxes. The complication of these laws is that so much spam crosses state or national borders. Hence, technology continues to pose new challenges in many spheres, and we will continue to evaluate and tackle them, one by one, including offering a new Spam–filtering service to campus email users this Spring. Keep checking the new Security Web site for more details: *http://security.ucdavis.edu/*.

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1997 Research conducted by the UC Davis Computer Science Department contributes to the first commercial network intrusion detection system.

1998 Across the world, computer experts begin worrying about how computers will handle Y2K.

The Clinton administration releases a policy for protecting the cybersecurity of America's banking, energy, electrical utilities, transportation and governmental services.

1999 "Melissa" virus spreads faster than any other virus to date, executing a macro in a document attached to an email, which forwards the document to 50 people in the user's Outlook address book.

2000 The world watches with fascination as the clocks turn over from 1999 to 2000, and computing disasters are averted.

Email users begin to receive a barrage of offers to share millions of dollars if they provide their bank account numbers.

2001 The Code Red Internet worms attack more than 700,000 computers throughout the world.

UC Davis develops an information security program on campus, and appoints its first IT Security Coordinator.

2002 UC Davis implements virus filtering for all email transmitted via the central campus email system; catches up to 200,000 infected messages each month.

"Klez" puts a new spin on the email virus with its ability to forge the sender address.

52,000 social security numbers are reported stolen from a database at the University of Texas, Austin.

2003 *http://security.ucdavis.edu/* debuts at UC Davis.

US National Infrastructure Awareness Center warns that increased international tension may cause more illegal cyber activity.

Kevin Mitnick's Web site is hacked.

An amendment to the California Civil Code (SB 1386) requires that people must be notified when a computer security breach results in the release of personal information.

National security experts present at UC Davis IT Security Symposium (coming this June).

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echnology Ten Years Ago?

"I was at one of my weekly fifth-grade sessions in the school's computer lab, engaging in such complex software programs as *Math Munchers* and *Oregon Trail*. Now, fifth-graders have Internet access right in their classrooms."
–Mara Abrams, student

"I was a freshman at UC Davis, using my word processor to produce all my papers; now, the campus expects all entering undergraduate students to own a computer."
–Mark Foncannon, staff

Why I Take Good Care of My Macintosh

by Gary Snyder

This poem has never been published in any of Gary Snyder's books but has appeared twice in *IT Times* over the years, due to popular demand. When *IT Times* first ran this poem in 1988, Snyder reported that he had a Macintosh Plus with a 20 Mb hard disk. Today, he uses a G-3 Mac notebook. Snyder won the Pulitzer Prize in 1975 for *Turtle Island*. He recently retired from his position as UC Davis faculty and is currently working on North American forest management issues, California water debates, and a new book of poems.

Because it buzzes while printing like a planer in a woodshop
Because it jumps like a skittish horse
     and sometimes throws me
Because it is pokey when cold
Because plastic is a sad, strong material
     that is charming to rodents
Because it is flighty
Because my mind flies into it through my fingers
Because it leaps forward and backward
     is an endless sniffer and searcher, is my faithful hound
Because its keys click like hail on a rock
& it winks when it goes out,
& puts word-heaps in hoards for me, dozens of pockets of
     gold under boulders in streambeds, identical seedpods
     strong on a vine, or it stores bins of bolts;
And I lose them and find them,
Because whole worlds of writing can be boldly layed out
and then highlighted, & vanished in a flash at
     "delete" so it teaches
     of impermanence and pain;
Because my wife likes it,
& because my computer and me are both brief
     in this world, both foolish, and we have earthly fates,
Because I have let it move in with me
     right inside the tent
And it goes with me out every morning
We fill up our baskets, get back home,
Feel rich, relax, I throw it a scrap and it hums.

Does Anybody Remember Playback Anymore?
Video Fast Forwards into the Classroom
by Julie Adcox

Deep in the dark recesses of Olson Hall, IET Computer Lab Management maintains a special archive of 4,900 three-quarter inch umatic tapes (imagine an overgrown VHS tape with a distinctively 1970s look and feel) and a retired "playback center," which at one time served as the central "switchboard" piping video into classrooms all over campus. Instructors would request the playback operator to activate the umatic tape of choice. The process was known as "video playback." Instructors could also access the 300 reel-to-reel films in 16mm format and 230 slide shows for playback in their classrooms.

Though the number of umatic tapes, films, and slide shows held is indicative of the past popularity of the playback system, playback was not without its challenges. Eric Shraeder, a Lecturer in the English Department, recalls some of the challenges instructors faced while using the playback center: "You used to have to call someone when you were ready to watch a video, and if they were busy or were away for some reason, you'd have to wait. Then, if you wanted to pause the video, you'd have to call back, and then call again to restart it." Ellen Lange, Lecturer in Linguistics, adds, "nothing was spontaneous in those days; if you found something relevant to show the night before class, you couldn't just decide to show a video right then and there."

The playback center closed in Summer 2001 when the playback hardware was failing and declared too expensive to fix. A decision was made then to focus efforts on continuing the installation of multimedia cabinets that are now such a familiar sight in the general assignment classrooms across campus (for more information on the media cabinets, visit *http://ittimes.ucdavis.edu/spring2003/mediacabinets.html*). The cabinets contain VCRs and Internet hook-ups, and are beginning to feature DVD capabilities, giving instructors the agency to show videos when they need to without having to go through the old playback center. Meanwhile, the extensive library of umatic tapes at the playback center is not going to waste; today umatic tapes are frequently dubbed onto VHS format and loaned out to instructors.

While making the most of existing resources, the campus also strives to keep up with technological changes that enhance teaching and learning. Presently, more than 2,700 VHS tapes and 330 VHS software tutorials are held in the Media Distribution Lab's permanent library, located in 1101 Hart Hall. With DVDs becoming increasingly popular, Computer Lab Management expects its collection, now limited to 20 DVDs, to grow quickly in the coming years.

Ellen Lange attests to the benefits of incorporating video into one's teaching repertoire. "I noticed that students perked up when we had a video. That's what pushed me to learn and use new audio-visual equipment. The technological changes on campus have always been for the better—though I often stumbled through learning the equipment initially." Eric Schraeder agrees that improvements to classroom technology benefit instructors most when the technology is user-friendly, giving instructors flexibility and control.

Faculty can find out if resources they need are available by visiting the UC Davis Film and Video Library Search site at *http://video.ucdavis.edu/*. The database is searchable by title, director, producer, subject, cast, department, or faculty. Clicking on the results of your search provides more details about the items retrieved, which can help you determine which selection to reserve.

It's not just instructors making use of videos and other media however; now UC Davis students also have access to these learning tools. In addition to the permanent collection of VHS tapes and DVDs, Computer Lab Management maintains a storehouse of audio/video materials provided by instructors expressly for student use. In 1101 Hart Hall Media Distribution lab, students access materials that instructors have placed on reserve for them. In fall 2002, students checked out over 13,000 media items (videos, audio-taped lectures and DVDs).

For the time being, Computer Lab Management focuses on ensuring that students and faculty have access to the materials and services they need. In the future, they expect to see an increasing demand for DVDs, which they have begun to collect instead of VHS. DVDs are preferred not necessarily because they are the newest technology with the higher quality picture and longer durability, but because they are more likely to include closed captioning features, thus meeting American Disabilities Act (ADA) standards. (For more information about what the campus is doing to meet ADA standards, see the story at *http://ittimes.ucdavis.edu/spring2003/ada.html*).

Mediaworks, the campus' instructional technology and digital media unit, reports seeing more and more faculty consult with them about creating more advanced forms of digital video technology for use in their instruction. Paul Verwey, Leader of the video team at Mediaworks (*http://mediaworks.ucdavis.edu/*) says this trend has been advanced thanks to compression technology which puts digital video in a format that is easy to post on the Web or drop into a PowerPoint presentation. "I also get a lot of requests to help instructors with DVD creation, since DVDs make it possible to combine multiple forms of media onto one disc," he says. DVDs can store slides, animations, video and other differing forms of media on one compact disc that promises high quality and durability.

This trend signals just how far the technology has come in the last few years. Not only can instructors now play videos in the classroom themselves, they are even beginning to create videos themselves.

View From an Incoming Freshman
Campus Technology Transforms Matriculation
by Mara Abrams, student

Compare the matriculation activities of an incoming freshman 10 years ago to those of an incoming freshman today and you'll witness an utter transformation of the campus technology. This technology has revolutionized not only the day-to-day processes that students must follow, but their expectations for them, the channel of communication between ourselves and campus officials, and even the overarching structure of college life.

Course Registration

One campus unit that has evolved parallel to advancing technology is the Office of the Registrar, the unit responsible for handling student enrollment in the thousands of courses offered on campus. Believe it or not, this process once involved pencil and paper. Students had to fill out a form with their top six class choices and drop it off at the Registrar's Office, according to Associate Registrar Don Barclift. Office employees would then manually key the students' information into an algorithm-based scheduling system. If students didn't like the classes that they were assigned, they would have to then go to the Rec Hall, where campus departments set up tables where students could request changes. The lines leading to the tables would often snake out the doors and around the grassy area outside of the Rec Hall, extending all the way onto the sidewalks of La Rue Road (as shown below in the photo circa 1990).

Thanks to emerging technology, the Registrar's Office was able to do away with these impossibly long lines (and tedious labor) by establishing the telephone registration system, RSVP, in 1993. It's hard to believe that students once had to register for classes in-person, but it demonstrates the extent to which technology has impacted the functioning of this campus. Nine years after its arrival, RSVP was retired in December 2002 to make way for Web registration to become the sole method for course registration. The Registrar worked with IET to develop Web-based registration and for a four–year period made available both phone and Web-based registration methods. But by 2002, it became clear that students considered the telephone an obsolete means of course registration when they could use the Web instead. "RSVP and the Web alike have eliminated long lines of students at the Registrar's Office, and at many other offices on campus, as well" explains Barclift. In addition, the Web has allowed students to update their addresses, file for graduation, and check grades, all entirely online. The general catalog, schedule of classes, and Degree Navigator are also available on the Web, as well as class rosters for department staff's viewing. "Technology has allowed the Registrar's Office to improve efficiency and customer service, allowing the student and departments a more self-service approach," Barclift continues.

Computing Accounts

Another staple of the college matriculation process for the past ten years has been obtaining a computing account. Students sign up for these practically as soon as they are admitted so they can initiate their campus identity with an "@ucdavis.edu" email account and begin to use the campus' online services. The process of doing so has changed over the years, says Beau Patrette, Manager of IT Express, UC Davis' computing help desk. While students once had to stand in lines and fill out forms by hand to register for an account, now they do so online using a Web site developed three years ago (*http://computingaccounts.ucdavis.edu/*) by Information and Educational Technology (IET). In the interim, Patrette explains, the text-based program Telnet was used for account registration.

Recruitment

It is clear that this past decade has brought about changes for enrolled students, but recent technologies have also benefited prospective students. The Office of Undergraduate Admissions and Outreach now utilizes WhyUCDavis (*http://why.ucdavis.edu*), an e-recruitment Web site, as one of their key promotional tools. WhyUCDavis has not replaced the campus' traditional marketing methods, such as the use of brochures and campus tours, but rather has changed the focus of UC Davis outreach. Print publications, which are getting smaller, tend to encourage students to visit specific Web sites for more information.

According to Alice Hom, associate director of Undergraduate Admissions and Outreach Services, Davis was struggling to maintain its competitive position within the UC system in terms of being a first choice campus among high school graduates looking to attend a UC. WhyUCDavis, a collaborative effort involving several campus units, was created in an effort to improve the image of UC Davis by keeping up with prospective students' demand for Web-based information about colleges.

photo courtesy of IET Mediaworks

The pilot version of WhyUCDavis rolled out in March 2001 and catered specifically to students newly admitted to the Humanities, Arts and Cultural Studies (HArCS) academic program in the College of Letters and Science. Cross-collaboration between HArCS, Public Communications, IET, Student Affairs Research and Information, Undergraduate Admissions and Outreach Services and most recently, the College of Agricultural and Environmental Sciences and Advising Services has since allowed the site to take flight. The current version now targets prospective students of all majors. Since its introduction last March, 162,081 unique users have visited the site. This substantial number suggests the contribution technology has made to our more traditional outreach approaches in a fairly short amount of time.

> **Thanks to emerging technology, students no longer have to wait in those impossibly long lines**

In addition to the function of catering to the demand of potential students, WhyUCDavis enables admissions personnel to better manage their workload. "Recruiters just can't be everywhere at all times to disseminate information about the campus," Hom says, adding that WhyUCDavis allows individuals to obtain the information they're looking for at any time of the day.

So what's in store for freshman matriculation in the next 10 years? Barclift is hopeful that we have only begun to see the potential of technology to inform and respond to student needs and expectations. "Technology will continue to play a key role in the future. We will continue to keep current with technology advances in order to improve the services we offer our students and the campus community," he says.

Shelving Books in the Digital Age
Ten Years of Change for Shields Librarians
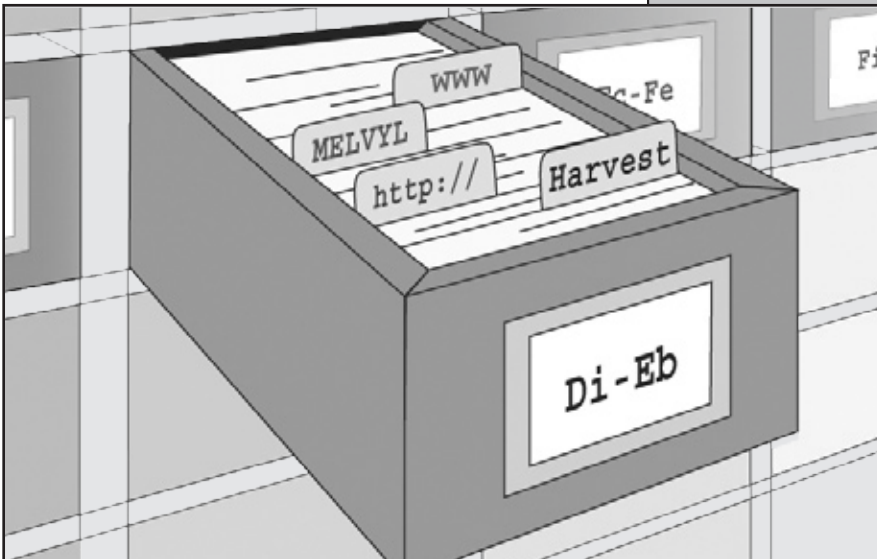
Beyond the Card Catalog

Ten years ago, there were few options available to individuals who wanted to use library services without actually making a trip to the library. Today, there is a richer variety of electronic and print resources. The library has converted many print documents to digital formats and the card catalogs of today are online databases that allow library users to search from their home computers. Campus individuals can now also search over 213 databases covering many specializations and interdisciplinary fields and reach several thousand full-text journals and books.

The new Harvest Library Catalog improves upon the Melvyl catalog, which was introduced over a decade ago. Another new library tool for UC Davis faculty, staff, and students is the Harvest Library Portal. The portal features broadcast searching among several databases simultaneously and offers MyUCDavis-like functions, such as one's own private electronic bookshelf and space for customized saved searches to be run against one's pre-defined list of databases.

For more information on these search tools visit *http://ittimes.ucdavis.edu/spring2003/library.html* or visit Shields Library's main page at *http://www.lib.ucdavis.edu/*.

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- Ten Years Later, Videoconferencing Serving New Purposes
- A Busy Decade for the Computing Help Desk
- Electronic Library Research Tools Continue to Expand
- A Closer Look at the Classroom Media Cabinets
- Life Before MyUCDavis: Info-Integration Efforts of Yesteryear
- How Passage of the 1990 Americans with Disabilities Act is Changing Campus Technology

As surely as online search engines and databases replaced old-fashioned card catalogs, other transformations are occurring in the contemporary library. "Media is distributed differently in different eras," says Gail Yokote, Assistant University Librarian for Research Services and Collections at Shields Library. For instance, while vinyl may have prevailed as the best audio format in past eras, digital compact discs are now the norm. These changes present new challenges to librarians. "When it is no longer realistic to assume that the average library user owns a record player, it's time for the library to decide whether or not the content on the records we house is worth keeping," Yokote explains. "If it is, we have to update our holdings with CDs instead." Along with this challenge comes a number of legal issues, due in large part to the new Digital Millennium Copyright Act (DMCA) which presents guidelines about reformatting media. Since UC Davis must comply with the DMCA, librarians are developing a familiarity with legalese they wouldn't have had to deal with ten years ago.

Other forms of media housed in the library—especially historical documents or photos—are protected from the ravages of wear and tear when they are reformatted. By scanning a set of photos and placing the new digitized images on the Web, library patrons no longer have to travel to hushed special collections rooms in which rare artifacts are housed under the proverbial glass. In order to provide this preservation of materials and convenience to users, the modern librarian is learning to come up to speed with scanning equipment, image resolution transfer, and Web navigation. "The digital age is providing new avenues for faculty and students conducting research, but it also requires more work and skill on the part of the librarian," Yokote explains.

Likewise, most major publishers have begun to distribute their magazines and newspapers online, in addition to the traditional print formats they offer. Thus, librarians have to decide how to receive the materials via the usual print subscription, or online via a license that can be costly and prohibitive. Again, licenses and legal ramifications come into play, adding to the growing pains introduced by this digital era.

Yokote attests that "the biggest challenge now and in the future will be to accommodate the multiple formats that publishers produce and distribute and to swiftly deal with all the licensing agreements that come our way."

❏

IT Times in '93

"The issue isn't that the technology exists or that it is not wonderful; the issue is how the information that lives in electronic limbo will be saved and archived for posterity."

–Marilyn J. Sharrow, University Librarian, quoted in an article titled *University Librarian Looks at How Information Will Stack Up*

IT Times in '94

" And what about the stunning revolution in information technology? How can we use this dazzling capacity to best advantage in the education of our undergraduates?"

—Chancellor Larry N. Vanderhoef in his Inaugural Address