



# the Labyrinth

Sharing Information on Learning Technologies

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## Peeking Around the TechnoCorner...

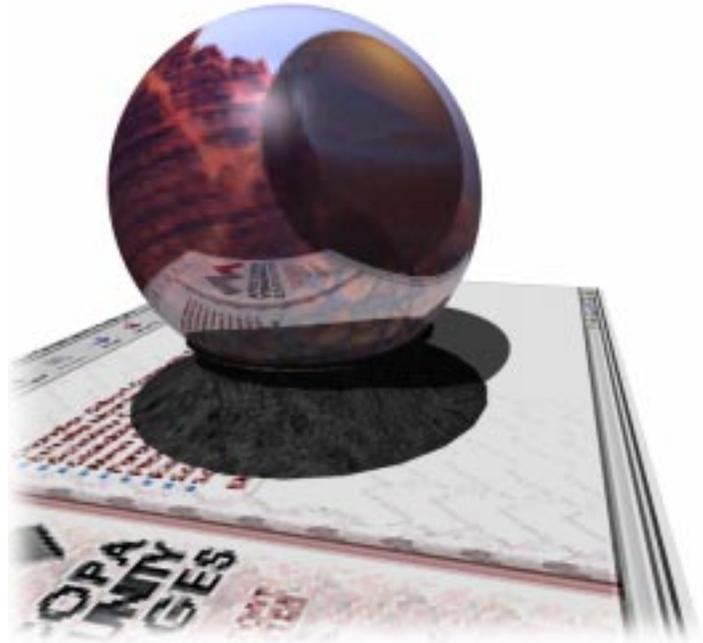
ALAN LEVINE  
MCLI

Are you ready for the big odometer flip on next year's calendar? We're not too worried about the technical Year 2000 (Y2K) issues since Jim Devere and his group are pretty much ahead of the game in ensuring the stability of our information systems. Some fear power outages from utilities that are run by old systems, ultimately triggering panic-stricken mobs. They have begun stockpiling canned food in their cabins "off the grid."

What we explore in this issue of the *Labyrinth*, less catastrophic and more speculative, is where technology might take us around that millennium corner -- say three years from now. For perspective, you only have to look backwards three years to see where we were (before the web was everywhere, when the fastest desktop computers were slower than today's bottom of the line), to consider how much might change by looking forward.

Future predictions about technology are often too general to hold meaning. As both of our interview subjects point out: anything you predict for 50 years down the line is likely to come true.

However, being more definitive is risky. In December 1995, Ethernet inventor and 3Com founder Bob Metcalfe (certainly no technology slouch) boldly wrote in *InfoWorld* that the Internet: "will soon go spectacularly supernova and in 1996 catastrophically collapse." In a later *mea culpa* presentation, Metcalfe shredded his article in a blender and literally "ate his words." The April 1996 *Wired* magazine projected the "Great Web Wipe Out" as all of the money and energy dumped into web development panned out. C|net's Keith Ferrel described the coming of "the Four Horsemen of the Net Apocalypse."



Has the web crashed? Is the Internet a ghost town? No! It seems to be growing even more pervasive in the world of telecommunications. Not only might ultra high speed bandwidth to our homes soon be common, it's conceivable we'll be getting phone calls and operating our appliances via the same TCP/IP protocols that Metcalfe and others declared would "choke."

Yes, simply having more net "bandwidth" is no guarantee that we will be able to do anything better with it than what's currently found on the web. Watch out for low flying jargon--"Just 'Push' me through that web 'portal' so I can grab an 'XML' cup of 'Java'!"

So, keep an eye on that future. It matters less who's right and wrong in the prediction game. What matters more is the way we adjust to the inevitable sweeping changes which are coming -- just around that corner.



DAVID WEAVER  
CGCC

# Getting Rid of (Visible) Instructional Technology

Education was, is, and forever shall be rooted in effective communication: faculty/student, student/student, and with oneself. Great lectures, good books, classroom collaborative learning, and effective study groups can all foster learning due to their ability to enhance communication. These communications 'technologies' are reasonably mature, so they are mostly transparent in an effective learning environment. Computer-based instructional technologies are burgeoning and, with them, come promises of enhanced communication/learning. However, the relative immaturity of these technologies means that they are far from transparent in our college classes. In fact, I would place computer-based instructional technologies somewhere between opaque and translucent.

Over the last quarter century or so, we've seen instructional technology playing a larger and larger role in conversations about teaching and learning. From early conversations about Computer Based Training (CBT) packages like Plato, through the hubbub surrounding the introduction of microcomputers, up to the cacophony over the World Wide Web (W<sup>3</sup>), the proportion of our energy focused on the technology itself has grown. A major part of national physics conferences focuses on CBLs (Calculator Based Laboratories), MBLs (Microcomputer Based Laboratories), the W<sup>3</sup>, computer simulations and the like while a relatively small part engages us in dialogue about the physics we teach and why. Math conferences and English conferences suffer from a similar technology bloat. The current crop of classroom communication technology is simultaneously ubiquitous and intrusive.

Because of all the possibilities, we focus much of our energy on the communication technology rather than the communication itself. We need the technology to fade into invisible infrastructure so we can turn our attention back to the essence of teaching and learning: communication.

Many of us live in an electronic Tower of Babel with so many devices forcing us to speak so many digital languages that actual communication seems coincidental. I currently have: a pager, cell phone, voice mail on three different phone systems, Palm Pilot Personal Digital Assistant (PDA), two graphing calculators, notebook computer and desktop computer. When the new RocketBook electronic book comes out in Q3, '98, I will likely be in line. My wife suggests that this plethora of personal communications products is due to the fact that I'm a heat seeker (and my business card DOES say that I am a Physics Faculty and Technology Dilettante). However, I prefer to think of this

cornucopia of communication gadgets as being proof that I: 1) have so much good stuff to say to and/or 2) have so many neat things to learn from so many people in so many places that I need to be maximally wired. We could probably all agree that I have too many high-tech toys to be practical. I certainly have less time available to communicate since I'm so busy learning how to operate all of these communications tools.

A solution to all of this techno-babel is integration among hardware, programming environments, operating systems, and networks. NexTel and others are now starting to offer combo communication devices which feature pager, cell phone, web browser, and walkie-talkie in one package. My Palm PDA has a major overlap with my notebook because they are on a first name basis with each other and share data freely (sort of). My Palm has a modem and supposedly can surf the W<sup>3</sup>, but I haven't taken the time, yet, to explore that cyberscape. Sun Microsystems and others are promoting cross-platform programming environments like Java and operating systems like Jini which are being designed to link devices from high-end workstations to coffee pots. Phone companies are starting to offer cable TV, cable companies are offering phone and high-speed Internet connections, and satellite companies are offering the heavens in addition to all the earth. Iridium, Teledisc, et al will soon be further unwiring the planet with hundreds of additional low-orbit satellites. This integrative trend will only continue with the Y2K+ users being able to ignore the individual devices they are using, if we get our network act together.

We probably face a few more years of network proliferation before we see the inexorable ebb. As with communication tools, I see communication networks reducing in number and being much more tightly integrated for the X (and Y and Z) generation(s). The tools and networks will then fade into the background from their current positions of center stage. Then, we can get back to talking about learning rather than how do we use this technology to teach. I predict that we are at or near the peak of complex, computer-centric conversations about learning. Early in the new millennium, the technology (and the network they rode in on) will be both so ubiquitous and transparent that we will never have to suffer through another "The W<sup>3</sup> in your Sociology classroom" presentation at a professional conference. That is a future to look forward to -- isn't it? Technology will certainly be involved in a major way, but, in a minor way as well. It's just around the corner.

# A Philosopher's View of the Net & the Future

## an interview with Barry Vaughan, MCC

*Note: The audio version of this interview is available in RealAudio format from the Labyrinth-Forum web site.*

**AL: Tell us a bit about yourself.**

**BV:** I'm a native of Oklahoma who was born and raised in a small town called Shawnee. During my undergraduate program at Oklahoma Baptist University, I majored in theology and minored in Philosophy. From there I went to the Master's program at Baylor University. I then taught for two years at my alma mater, Oklahoma Baptist University, before I entered the Ph.D. program at the University of Oklahoma in Norman (I hope to be defending [my dissertation] in the next month or so). This is my third year as a teacher in the Philosophy department at MCC.

**AL: Let's talk about technology and Philosophy ... How did you get started?**

**BV:** In 1994 a friend who was responsible for information services at the University of Oklahoma introduced me to this thing called the Internet. He said, "This is going to change the nature of education ... if you are serious about post-secondary information, you must understand this thing called the World Wide Web, and you must find some way to incorporate it into what you do."

I learned how to get around on the web and began developing the basics of web page creation with HTML. Quite frankly, in the beginning, I did not know exactly what I would use it for. The first application that occurred to me came because, as a commuter student myself, I knew that many of my students could not always meet me during my office hours. So, if I could create a web page with class resources, my students would know where to get information they might need if they had missed a class or if they just wanted to review. Since I had already created the overheads, I began placing study guides and lecture outlines on my web page.

I was worried that students would begin skipping class if they knew they could get the notes on-line, but this did not happen. Students downloaded the notes before class, reviewed them and, during class, they did not have to waste time writing. It gave them more freedom to participate in classroom discussion.

Next, I began to think of other resources that would increase the impact on my students. First was an interactive dictionary of technical terms

we use in Philosophy with links to related resources (<http://www.mc.maricopa.edu/users/vaughan/phil.html>). I began looking for material that was no longer copyrighted which could be marked up with HTML and added to my electronic library. This, while it is not yet quite finished, is a resource for most of the major Philosophers in the Western tradition. It was a long time before I even thought about actually using the web as the medium to teach a Philosophy class.

I began to receive e-mail from people all over the world. These individuals had come across my site via a web search. I began to think about people who may not be in a class but may have a general interest in Philosophy. Most web sites then were merely collections of links to other sites, and these generally were places where authors listed their publications, vita, and their courses. However, there really was not a substantial amount of information out there. I was beginning to think of the Internet as a resource, a kind of public library.

It was then just a small step to see the web as a venue for actually teaching Philosophy; this was an opportunity presented to me when I joined the faculty at Mesa.

**AL: Can you describe some of the courses you have taught over the web?**

**BV:** For the past few semesters I have been offering my 101 course, "Introduction to Philosophy." The biggest obstacle in teaching Philosophy over the net is communication. Unlike courses like History or Literature in which a person can read and understand the subject matter, Philosophy is so abstract -- the works my students read are often translated works, and much of the learning comes from the discussion of topics. The method which has worked the best for me is the use of an asynchronous web board. This is a site where students can post questions and answers. I also require them to keep a journal of their readings, responses to the readings, and the readings' theses and major arguments. Rather than just have them turn in the journals to me, I have them post them on the web board, where other students can read and respond.

continued ...

**AL: Given the use of technology, have you seen changes in your role as a teacher or a philosopher?**

BV: The vehicle of the Internet does not significantly change my role. I'm a college professor, whether I am in class, on closed circuit television, or across the Internet. Now professionally, there are some changes in the way we interact with colleagues. The Internet gives us an ability to communicate and research in a manner that was not possible before. I am able to share pre-publication drafts with colleagues worldwide, perhaps even with the very person I am arguing against. Also, I can get feedback before it even goes to the refereed journals.

**AL: What do you see in your crystal ball, say three years from now, what do you see you and your students doing? Where does technology fit in there?**

BV: One of the things I expect is that bandwidth to our homes will increase dramatically. I would expect a greater use of two-way video communications in our teaching process. This will happen once it is reliable, accessible, and cheap.

One thing that may surprise everyone is that I do not believe we will see a huge increase in the number of students taking Internet courses. There is something about the experience of being in a room interacting with other students. People will still come to the campus; it's just that what we do in the classroom that will change. We will incorporate more and more technology in the classroom. Students will use portable computing devices; they'll be much more dependent on computers in doing their research. There will be more collaborative projects rather than individual written assignments. Perhaps even web sites will be created by student teams.

**AL: What else do you see in the crystal ball?**

BV: We may see a movement away from large centralized campuses. With the shift from an industrial economy to an information economy, the need to live in huge metropolises is going to disintegrate. People are going to rediscover the benefits of living in small communities, much like the one I grew up in. This is a response to concerns of pollution, water supply, and because jobs will allow for a remote work environment. As this happens, educational institutions must be available to these people. We will see a revival of the small liberal arts colleges and community colleges in

small urban centers. This is a good thing. I think de-centralization fosters creativity.

**AL: What are some social or economic ramifications that you see for technology?**

BV: In terms of history, we are very much in the same situation that occurred in Europe with the advent of movable type. People think *that* was the invention of printing, but we had printing long before Gutenberg's invention. Movable type simply made printing cost effective. Suddenly, very cheap books were available to lots of people, which caused an absolute explosion of literature. Prior to the Renaissance and the Reformation, there were centralized authorities for the dissemination of information. This was the Church. Because of the explosion of literacy, which was brought about by affordable printing, the power of authority moved from the centralized hierarchical authority of the Church to the more local regions. As the Church's power waned, there was a rise in new institutions that disseminated information, places that we would call the University.

I think we are in a very similar situation now. We are in a transition period. Instead of academic institutions being the primary source of information, people like Matt Drudge are disseminating information. "You can find anything you want to on the net!" One of the problems, and this is the same problem they faced with the disintegration of the Church's authority, is how do we evaluate information? How do we decide what is legitimate? How do we verify truth and accuracy? I don't think we know the answers to these questions. This is one of the largest issues facing us today.

Remember, after the invention of movable type and the explosion of books in Europe, it took sixty years before someone thought of putting in page numbers. The table of contents took even longer. Who would have thought of organizing a library by a card catalog? These are conventions that come about because of a crisis of information overload. Such overloads caused us to find ways of organizing and verifying information.

That's where we are right now; it is an absolute frontier. There are no rules and no laws. Academics as well as politicians and the public at large should be discussing these issues right now, because no one has a clue how to evaluate all of the new information.

# Demonstration of a Real Time Remote Experiment Using the Internet in the Undergraduate Biology Classroom

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## Introduction

Imagine scientific research being conducted beyond the walls of a traditional laboratory; this is research that can be done in a university undergraduate classroom or in a community college. Imagine students in K-12 classrooms observing these experiments. Or even imagine observing it from your own living room.

As we move into the next millennium, such synergistic collaborations are possible because of the recent development of the web as a practical affordable tool for linking universities, colleges, schools, museums—in short anyone with a computer on a network. Transcending the barriers of time and space, we can break walls and fully leverage all the resources of our world. Students at Chandler Gilbert Community College use the web in a variety of ways. Performing and observing experiments remotely via the web is an ultimate web activity which has high student participation.

## Power of the Internet

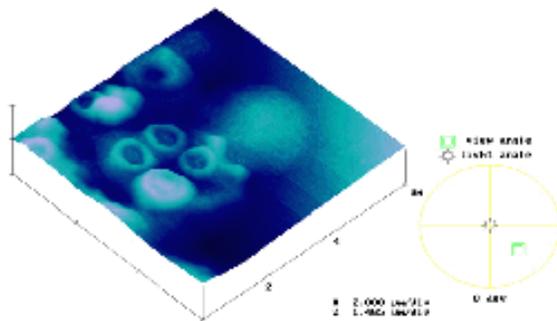


*“By the year 2000, 60 percent of the new jobs in America will require advance technological skills.”*  
— Vice President Al Gore

As the beginning of the next millenium rapidly approaches, education which utilizes technology is rapidly expanding. Today’s student has come to expect the latest technology for career preparation and new pedagogies in learning styles. The United States is a world leader in science and technology, but we are still striving to transfer the excellence from the research frontiers into K-16 classrooms. We also need to transfer the excitement of scientific research into these classrooms.

This has been achieved by the National Science Foundation INVSEE project, Interactive Nano Visualization for Science and Engineering Education (<http://invsee.asu.edu>). INVSEE has created a consortium of educators with a common vision of building an interactive web site for nanoscience and technology. A state-of-the-art scanning probe microscope has been put on the web. Partners of the INVSEE project

continued ...



include Arizona State University, Chandler-Gilbert Community College, Arizona Science Center, Motorola, and Topometrix.

Students and faculty from universities, colleges, and high schools can become actively involved in real-time research. Experiments that were previously only described in scientific journals and textbooks can become a part of everyday science and engineering education. INVSEE enables students and teachers, through novel learning technologies, to visualize and understand our material world at the invisible atomic and molecular level.

INVSEE is a unique initiative that enables a science or engineering class ('operator') to select and investigate materials over the web. Using a 'fishbowl' format, other classes ('observers') will be able to observe the operator class while they conduct an experiment. The web allows us to use technology truly as a collaborative environment.

This educational innovative technology provides an opportunity to revitalize the curriculum. All modules have integrated state-of-the-art research from the frontiers of science into the undergraduate curriculum. The lesson modules are built around a theme "levels of scale" from macroscopic to microscopic to nanoscopic worlds. The lesson modules are multidisciplinary. Students of Biology and Math can study the module on "statistical analysis of yeast budscars." (<http://www.cgc.maricopa.edu/instruction/scimath/biology/INVSEE/yeast-toc.html>)

This visualization across the curriculum which uses cutting edge technology is a powerful tool and may challenge students to enter careers of science and engineering. This technology also has the ability to energize students. And, it empowers them by providing ownership of their knowledge.

The lesson module "The Five Kingdoms" explains the different characteristics from

organisms of the different kingdoms (<http://www.cgc.maricopa.edu/instruction/scimath/biology/visualization/INVSEE/kingdoms.html>). When the remote experimentation was piloted with the BIO 181 (*Biology for Majors*) students, they were absolutely fascinated by the technology. Nathan Smith, a BIO 181 student wrote,

I thoroughly enjoyed last week's lab, giving me an opportunity to see things that many have never seen before. For example, the image of the yeast in the process of budding. I have read very little on the topic, even though I know a little of the process, the visual effect would be enough to inspire even the most hardened science critics. Using the technology of today to motivate the students to participate more in the sciences is evident in many ways. The computers allow you a hands-on approach. With this hands-on approach it allows everyone to become involved in the moment of excitement. In my eyes, this experiment would be invaluable to the students of the future, allowing their minds to grow around science.

## Conclusion

The internet has been a great tool to bring together students with diverse backgrounds. These interactive modules provide the necessary framework to empower students to do real scientific work. Also, this technology gives a new meaning to hands-on interactive experience.

Future goals for this project include developing a number of lesson modules and allowing more opportunities for K-16 schools to utilize the web for research based experimentation.

## Acknowledgements

INVSEE is a National Science Foundation grant (NSF//REC9632740) awarded to Arizona State University with subcontracts to Chandler-Gilbert Community College and the Arizona Science Center.

The key personnel in this project who provided invaluable help in developing the remote experiment of the yeast module are Dr. Ed Ong and Dr. Tony Garcia from Arizona State University. Acknowledgements also go to James Archer and Cecilia Hernandez, students of CGCC for their web design.

# What the Future Holds for Learning Languages

an interview with Vernon Smith, Rio Salado College

ALAN LEVINE  
DIST

*Note: The audio version of this interview is available in RealAudio format from the Labyrinth-Forum web site.*

**AL: Tell us about yourself...**

VS: Currently, I am the faculty chair for Foreign Languages at Rio Salado College. My background is in Latin American studies and Spanish. I also have a degree in Organizational Behavior. This has helped me because, at Rio, a person is not only a faculty member but also the chair of an entire department.

I grew up in Mesa, Arizona, and I am a MCCD product; I graduated from Mesa Community College. For my mission work I spent time in Peru and Mexico, which is where I acquired an interest in Latin American Studies. I did my graduate work at Brigham Young University in Organizational Behavior, the program started by Steven Covey. Beginning as an adjunct faculty at Rio, I discovered my love for teaching. I think my corporate training background was an asset when I was hired for a full-time position in 1993.

Initially, I was teaching accelerated learning classes, a compressed, flexible format. When asked about developing distance learning classes for foreign languages, I really questioned whether it could be done, since I saw myself as a classroom teacher. But now I think we have figured it out. Because of my background, I have always had an interest in bringing in more international education; for example, the Hands Across the Border project ...

**AL: Can you tell us about that?**

VS: We work with a sister school in Mexico, the Instituto Tecnológico de Hermosillo. We take approximately 50 students, faculty, and staff to this location. They live in the homes of our Mexican counterparts. For a week they visit the campuses and see how education works. Later we provide the same experience here for the Mexican faculty and staff. This year, since the Institute recently obtained their Internet connection, we used technology. We set up FirstClass accounts so the participants could communicate electronically during and after the experience. It was a great exchange of culture.

**AL: The role of full-time faculty at Rio is a bit different than at other colleges—can you try to describe it?**

VS: Part of Rio's strength is our relatively small organization. This means we can be very flexible.

As a one-person department, I may implement a new program rather quickly. Another difference, but actually not *so* different from the other Maricopa colleges, is that we work a great deal with adjunct faculty. Having well-trained adjunct faculty is critical, so I work with the Adjunct Faculty Institute on their intense training. In addition to this, we now immerse them in technology. The teacher of the future needs technological skills; it is something we look for when we hire faculty.

**AL: How many adjuncts do you work with in the Language department?**

VS: About fifty ... each one teaches one or two different classes. In our schedule a new class starts every month.

**AL: Are the majority of your students really "distant"?**

VS: They are mostly local. However, we did have a student from Kuwait, who was an officer stationed there. We are starting to enroll students from many parts of the United States.

**AL: How do you teach language by distance?**

VS: An instructor needs to start from very well developed course materials. In development, one needs to consider, "How may I present this in as many modalities as possible?" For our Spanish courses, we have been using Annenberg/CPB's *Destinos* which includes a textbook, a workbook, and a video tape ... of a soap opera. It is excellent! The characters travel to Mexico, Spain, Argentina, Puerto Rico, so the students hear many different dialects spoken by people of all ages. Students are exposed to far more native and real language than they would even get in a classroom.

With these materials, students are reading, writing, *and* speaking. Each student gets a voice mail box, and they have assignments that require them to leave oral messages for their instructor. We also schedule teleconferences which use Rio's bridge that allows us to host up to 40 callers at a time.

This type of communication is not yet viable via the web, so our Internet students get the same

continued ...

*A very popular series funded by Annenberg/CPB entitled Destinos helps viewers and students learn Spanish. With its innovative approach to teaching language through immersion in a dramatic story—a format popular in Hispanic cultures, called a telenovela—the series has found an audience not only with Americans learning Spanish as a second language, but with native Spanish speakers as well. In fact, a series of new Destinos books are in production and will be specifically targeted to native speakers of Spanish.*

<http://www.learner.org/collections/multimedia/languages/deseries/>

box of materials; however, by using FirstClass conferencing software, they submit assignments and communicate on-line.

The best compliment I have ever received was, "This is way too hard. I have to work far more than I ever anticipated ... but I learned far more than I ever would in a classroom." In distance learning, a student must do his/her homework before participating in class discussions. It's a greater student responsibility. The instructor's role is also different since the material is already well-developed. Imagine going to a class in which all of the students have read the assignment, done the homework, and have questions ready. That usually happens in our distance classes. It's amazing what happens to the levels of conversations once the students start taking that responsibility.

**AL: So most of your courses are either on the web or distance learning?**

VS: We mostly do grammar courses in distance format. It's quite a challenge to do the conversation courses, which we offer in accelerated (classroom) format. I can see distance learning happening with an increase in available bandwidth when we are able to offer two-way verbal interactivity. For now we can accomplish quite a lot with technology as simple as the telephone.

Distance learning frees us from time and space constraints -- space is easy to do, so what we focus on is more efficient and flexible use of people's time. How does an instructor give students what they need -- when they need it? For example, we have "Beep-A-Tutor." These are helpful individuals that students may page at any time, 24 hours per day. And, we are looking at a "Cyber-Tutor" who would be available live, on-line for questions.

**AL: What kinds of trends are you seeing in students?**

VS: Students have hectic schedules; they are trying to balance job, school, and family. We have some students who are completing their degree requirements. But what surprised me the most are the students who are retired, highly educated, and sign up for language courses out of interest.

**AL: Can you predict anything in the teaching and learning of languages for just around the corner in the new millennium?**

VS: Even more flexibility—I can see the 24-7 (24 hours a day, 7 days a week) college. I see more highly advanced materials that increase the interactivity with the instructor.

**AL: What will it take to get there?**

VS: I see the interfaces of the tools and technology becoming easier to use. However, one of the greatest barriers is a mindset about the roles of faculty changing from the source of content to a coach, a mentor... someone that is facilitating the process of learning, not spoon-feeding or hand-holding the learner. It calls for a change in the students as well! The administrative side also needs to do more systems thinking on ways to support these shifting roles. They need to truly focus on their core processes of learning. If we offer 24-7 services, does that mean our schools will still have nine-month faculty? Do we quit learning over the summer? Do we shut down the college at 6:00 p.m.?

**AL: We've been hearing about these changes for a while—do you see any sign of it happening?**

VS: Yes, in the private sector. This is an untapped market. In entering this new age, education must be a leader in society. Education must promote new ideas and act as a guide while going through this transformation. If we don't, then some private entities will ... you can even begin naming them, because they are starting to emerge, and Wall Street is noticing.

I think our strategic advantage is that colleges think about their local community which is, for now, still in the minds of the public. Once this concept breaks down, when the public knows they can shop around for the best class and instructor, things will change.

**AL: What about our system of degrees and accreditation?**

VS: Students still want to know what they buy has quality. But the degrees that are accredited might change. I think there will be more competency-based standards for learning skills that will eventually be used. At the same time, we continue to see students with a desire for general interest courses, not necessarily tied to a skill or a job. Examples include art appreciation, history, genealogy ... yes, "Edutainment" is big.

With all that is changing, we need to be flexible, to be able to adapt, and to move. At the same time we must preserve quality.

Considering our role as a community college, I'd like to see us freed from the constraint of two-year programs. This idea of "upper division" and "lower division" is outdated. Is it practical and good for the students? Looking forward, we may see a lot of backlash from institutions who are trying to preserve their lives. There will

be attempts to redraw geographic boundaries, but the lines will not matter anymore because of the Internet.

**AL: What do you see in new technologies?**

VS: I don't think the computer desktop interface is one we will be seeing. Perhaps technology will include more of a TV/computer combination with flat screens that are visually easier on the eyes than current models. The best technology I've seen lately is my PalmPilot. I can dock it into my computer; it carries a database and calendar with me. I can just see it getting more and more powerful.

Can we give students access to all of this technology? Setting up a lab is not enough.

I can see better voice recognition software. Think about this—do you really need a language teacher? Yes you will, because language teaches you another way to think. It is a whole different universe of thought and perception, a different way to see reality. The word *ventana*, means something totally

different to me than when I hear the word *window*. It's tangible; it tastes different.

It's fun to predict. If you project far enough into the future, pretty much anything one says will happen ... like the works of Jules Verne. It's the short term future which is most interesting.

And what is really interesting about technology is the human interface. If we look at institutions and society as social-technical systems, while at the same time technology has been moving, moving, moving ... socially we have not moved very quickly. If technically you can create a virtual college, what does that mean? Do you really have to come to a place to learn? Do you need a teacher on site?

However, I think there will always be a need for the college experience. College is a socialization process. There will be a lot of interesting combinations ... and growing pains.

And I want to be there.

## Upcoming Events

Mark Your Calendars!

**All-Faculty Convocation 1999  
Community in Higher Education:  
Teaching, Learning, and Conversations Among Colleagues  
January 8, 1999 • 7:30 AM to 3:30 PM  
Scottsdale Community College • Gymnasium  
East of the 101 Expressway at Chaparral Road**

*Pre-Registration Brochures will be mailed out in November, or you may register on-line at:  
<http://www.mcli.dist.maricopa.edu/events/afc99>*

*For more information, contact the Maricopa Center for Learning and Instruction at 731.8300.*

### Videoconferences

***The Privatization of Higher Education:  
Who is the Competition?***

December 2, 1998 • 12:00 PM to 2:00 PM  
District Office Room 311

***Faculty Pay in Distance Education***  
January 28, 1999 • 12:30 PM to 2:00 PM  
District Office Room 311

***The Privatization of Higher Education:  
When to Compete; How to Cooperate***  
March 3, 1999 • 12:00 PM to 2:00 PM  
District Office Room 311

***Faculty on the Front Lines:  
Reclaiming Civility in the Classroom***  
April 8, 1999 • 11:30 AM to 1:00 PM  
District Office Room 311

### Open Space Forums

***Estrella Mountain Community College***  
February 1999 (TBD) • 1:00 PM to 3:30 PM  
Room TBD

***Scottsdale Community College***  
April 1999 (TBD) • 1:00 PM to 3:30 PM  
Room TBD

***District Support Services Center***  
April 23, 1999 • 1:00 PM to 3:30 PM  
Governing Board Room

***For more information on the 'Learning at  
Maricopa' initiative, check out our web-site:  
[http://www.mcli.dist.maricopa.edu/  
learning/](http://www.mcli.dist.maricopa.edu/learning/)***

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## Bag of URLs

MCLI collects relevant web sites to share with you in our "Bag of URLs":

<http://www.mcli.dist.maricopa.edu/eye/bag/>

This site offers you features to search among more than 1400 items already submitted, a place for you to "drop" more URLs in the "bag," and an e-mail list to sign up so you can receive notices when the most recent bag has been updated.

Below are a few sites that address the futuristic theme of this issue. We encourage you to share more related sites.

### Maricopa Web Sites

*The Sedona Conference: Transforming the Medium—The Convergence of Education, Technology and Entertainment:* "Join the Maricopa Community Colleges and leading multimedia and entertainment experts from around the world in Sedona, Arizona, April 7-9, 1999 for an interdisciplinary conference which provide an extraordinary examination of multimedia advancements, digital technologies, and philosophical and educational themes for understanding the future and higher education in the next millennium."

<http://www.dist.maricopa.edu/comm/redrock/>

*The Futures Institute at Rio Salado College:* "We see ourselves as students of the future and as active agents in its creation. Our approach is interdisciplinary, cosmological, and practical...Through our website, workshops, and consulting activities we offer a variety of educational services to people who are interested in creating the future."

<http://www.rio.maricopa.edu/future/>

*Integrated Studies 290 - Introduction to the Future 101:* is an "interdisciplinary and integrative inquiry and examination of possible developments in the future," offered in distance learning formats from Rio Salado College

<http://www.rio.maricopa.edu/ci/riointernet/future/class.html>

*The Impact of Information Technology: Learning, Living, and Loving in the Future* by Tom Lombardo, *Labyrinth-Forum Spring 1997:* "I would suggest that society is, in fact, transforming in a

fundamental way, but the Information Revolution is only part of a more general phenomena involving multiple and interdependent causes, including human values, ways of life, culture, science, politics, and economy."

<http://www.mcli.dist.maricopa.edu/labyforum/Spr97/spr97.html>

### Other Web Sites

*The Whitehouse Millennium Council:* "is a multi-year initiative to mark the end of the 20th century and the beginning of the new millennium. The Program will celebrate the accomplishments of this American century, recognize and initiate projects, and engage every sector of society in conveying our rich heritage to future generations."

<http://www.whitehouse.gov/Initiatives/Millennium/main.html>

*World Future Society:* "is a nonprofit educational and scientific organization for people interested in how social and technological developments are shaping the future."

<http://www.wfs.org/>

*Cybertown:* is a virtual futuristic city to be explored via the web: "Cybertown was built in the latter half of the 21st century and is located in the Omega Quadrant not too far from the galaxy known as the Milky Way. It is populated mostly by people originally from Earth. Many of them left Earth after the Great War in the hopes that a new start would lead to more peaceful times."

<http://www.cybertown.com/>

*Foundation for the Future:* This "was established to promote scholarly research to better understand the factors that may affect the future of humanity."

<http://www.futurefoundation.com/>

*Foundation for Global Community:* is an organization that hopes to "contribute to an evolution of cultural values, from today's dominant focus on 'more,' on growth and materialism, to an emphasis on "enough," on quality and excellence of spirit."

<http://www.globalcommunity.org/>