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TIPS News

Technology in Education

TELECOMMUNICATIONS INFRASTRUCTURE PROJECT STATEWIDE

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CVU Regional Center Draft RFA Released

Larry Toy
President, Foundation for California Community Colleges

The California Community Colleges Chancellor's Office has released a draft Request for Applications (RFA) for the establishment of four California Virtual University (CVU) Regional Centers. The maximum funds available allow four grants of $600,000 each, with the grant awards to be renewed annually for up to five years, subject to annual evaluation. As funding is ongoing, a new RFA will be issued every five years.

The Centers are to provide technical and pedagogical assistance to faculty and staff in the development or conversion of learning objects, courses, or programs, and to make them accessible on the web and, in the case of courses, to be offered at a distance, typically under the auspices of the California Virtual University. Colleges or consortia may only apply to develop and maintain the Regional Center in their region. Generally, each region will serve approximately 25 to 30 colleges, and will fall into these areas: Orange County, San Diego, and Southern Los Angeles area; Greater Los Angeles Basin, Small and Rural Colleges; and Greater Bay Area.

The goals of the four grants are:

1. To assure a sufficient number of high quality courses, course shells, and learning objects to permit full and effective participation by the California Community Colleges in the mission and offerings of the CVU.

2. To promote close cooperation and, where feasible, joint curriculum development in the interest of (a) the highest quality curriculum and/or (b) ease of transfer of course credits among community colleges, other public and private organizations, and upper division institutions,

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Status of Chancellor's Office Video Bridge Installation

Charles Mawson
Telecommunications Analyst, CCCCO

The California Community Colleges Chancellor's Office (CCCCO) video bridge is nearly ready for use, with the beginning of service scheduled to begin on October 15, 1998. As part of the original contract for the purchase of videoconference equipment, PictureTel donated a video bridge and two years of free staffing to the CCCCO.

The CCCCO is currently working with PictureTel and Pacific Bell to certify each college video site (verification of site contact, ISDN line numbers, room numbers, and bandwidth of 384 kbps.). If the system is not running at 384 kbps or if the site does not have a current service contract with Pacific Bell, the site cannot be certified. Uncertified sites will be required to pay an additional $35 per hour to use the bridge until they are certified.

While use of the bridge is free, all sites still need to pay for line transport charges to the San Francisco PictureTel location (approximately $50 per hour).

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

COMMENTARY

Education in the Electronic Ether

Vicky Phillips
CEO, Lifelong Learning

On a recent business trip a man asked me what I did for a living. I replied that I wrote and taught college courses. "Oh?" said he. "Where do you teach?" A peculiarly honest answer came out of my mouth before I could think. "No where," said I.

It's true. Since 1990 I have taught and counseled for what a friend of mine calls keyboard colleges -- distance learning degree programs. Where I teach is inside the electrically charged ether that lies between my phone jack and the home computer of a group of far-flung, generally older than average, college students.

In 1990 I designed America's first online counseling center for distance learners. I've worked since then with over 7,000 learners online. I've flunked a few of them. I've never personally met any of them.

For want of a clearer explanation of my career situation I tell the man who inquired that I teach in cyberspace. "I'm a virtual professor," I try explaining. "Distance learning .... online degree programs ... virtual universities."

The man's face remains as blank as the sky on a summer day. I cannot tell whether he is silent out of respect or keen confusion. I imagine both to be the case, so I settle in to explain what I have to explain frequently these days: the decline of the American college campus and the rise of the American educational mind, as I see it.

Distance learning, or educational programs where pupil and professor never meet face-to-face, are not anything new. Sir Isaac Pitman of Bath, England, hit upon the idea of having rural learners learn secretarial skills by translating the Bible into shorthand, then mailing these translations back to him for grading. He began doing this in 1840.

I don't teach shorthand. I teach psychology and career development. I write many of my own lessons though, just as Sir Isaac had to do. My penny post is the World Wide Web. I post assignments to electronic bulletin boards and send graded papers across the international phone lines in tariff-free e-mail packets. I convene classes and give lectures in online chat rooms as needed.

Is this a valid way to dispense a bona fide college education? Can people learn without sitting in neat rows in a lecture room listening to the professor or a Sage on the Stage? Yes, absolutely. In fact, while many people find it hard to imagine a college with no campus, I now find it hard to imagine teaching anywhere other than the freedom that is cyberspace.

In cyberspace, I listen, read, comment, and reflect on what my students have to say -- each of them in turn. What they know they must communicate to me in words. They cannot sit passively in the back row twiddling their mental thumbs as the clock ticks away. They must think, and they must write. Thinking and writing: what else but these things are

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TIPS on Videoconferencing

How Do I Arrange the Room?

• This information is reprinted from *Site Planning for Videoconferencing*, part of the Videoconferencing 101 series. For more information, contact PictureTel at 1-800-716-6000
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Here is the most important design goal to reach when you arrange your videoconferencing room: Make sure that the PictureTel system can "see" and "hear" all of your meeting participants.

Plan For the Camera's Field of View

The first thing to consider as you plan your room arrangement is the camera's field of view, which is the area that the camera sees.

The camera's field of view increases with the distance between the camera and meeting participants. The more participants that you plan to have in your videoconferences, the farther you need to place the camera from the participants.

For desktop videoconferencing, you'll be sitting at your desk with the camera placed right on top of your computer monitor.

For group videoconferencing, arrange the room using this simple rule: For every participant that you plan to have in the camera's field of view, add at least .6 meter (2 feet) to the distance between the camera and the participants. For example, if you plan to have four participants facing the camera, locate the PictureTel system at least 2.4 meters (8 feet) from the participants.

For large venues with fixed seating, you might want to locate the PictureTel system on on a raised platform or stage for better viewing.

Remember that you can always use an auxilliary camera in your room, either mounted on a tripod or installed in the ceiling. An auxilliary camera can view anything that falls outside the field of view of the PictureTel system's camera, such as additional meeting participants, a whiteboard, or a flipchart.

Plan for Microphone Placement

Sound is just as important as the picture in videoconferences, so you'll want to think about microphone placement as you plan your room.

If you have a PictureTel desktop system, you'll have a microphone or speakerphone on your desktop within arm's reach. Or you might have a headset or earpiece that has a microphone.

If you have a PictureTel system for group meetings, plan to:

- Place the system's keypad with a built-in microphone on the table in front of the meeting participants. The keypad's microphone can pick up sound from as many as four participants
- Use a supplementary microphone, such as the PictureTel PowerMic™, for videoconferences with more than four participants. The PowerMic is a smart microphone that can single out anyone who is speaking within a 4.3 meter (14-foot) diameter circle
- Use a lapel microphone when someone is giving a presentation

If you plan to use a PictureTel system in a lecture hall or auditorium, you might want to install ceiling microphones to pick up audience responses.

As a rule, use as few microphones as possible to meet your requirements, because the more microphones you have, the more background noise you'll pick up.

Room Acoustics

In most rooms, the existing acoustics are fine for videoconferencing. But if you have a room where people sound like they're talking into a tin can, you can always add things to the room to absorb the annoying sound reverberation. For example, if your videoconferencing room has large windows, which can cause sound to reverberate, install curtains, drapes, or blinds.

Tile floors and ceilings of hard materials can also cause sound reverberation. Consider installing a carpet and adding acoustic ceiling tiles.

LIGHTING a Videoconferencing Environment

Part One: •Types of Light
•Characteristics of Light

• This information is reprinted from "Why Do I Look Like A Raccoon?," and was provided by ITRIX, Inc. For more information, contact ITRIX at 415-957-1744
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The following information deals with specific issues relating to improving the appearance of a videoconferencing room. However, there generally is a conflict of interest between this goal and the design constrictions of the setting in which it is to be accomplished.

In other words, videoconferencing is about turning offices, classrooms, universities, hospitals, and courtrooms into interactive television studios. Aside from the networking intricacies, this poses several challenges to creating a good environment for videoconferencing.

In order to render an image of good quality, a videoconferencing facility must offer light of the right level, angle, and color temperature. There must be enough light to provide a "noise-free" picture (lack of fine-grained static in the displayed image) with adequate depth and focus, and it must come from the proper direction to avoid undesirable facial shadows. Lighting must also enhance image depth and contours by intentionally creating desirable shadows and highlights. In addition, particular care must be given to the tonality of color that will be visible in the room, in regards to how it will affect the auto-iris function of your particular camera.

When implementing these changes to your new videoconferencing room, the room(s) should not contain any "obtrusive" elements that would sacrifice the visual integrity of the rest of the "non-video" rooms. Also, the users should not be made to feel like they are "on stage."

Types of Light

Incandescent Lamps

An incandescent light bulb is the conventional lamp used in most residential and many commercial and industrial lighting applications.

Incandescent bulbs at high wattage are often found in traditional stage lighting, and produce the best results for shooting video because of the favorable way in which the emit red, green, and blue light in relation to the camera. Remember that white light is not the absence of color, but a combination of colors.

However, they are not the best choice for videoconferencing rooms, office, classroom, or hospital environments, for two main reasons:

- Incandescent lights are very hot.
- Incandescent lights draw more power (which costs more), and the bulbs need to be changed more often their fluorescent counterparts.

A confined space (such as a videoconferencing room) will quickly heat up with just a few high-power incandescent bulbs.

Fluorescent Lamps

The term "fluorescence" describes the phenomenon in which certain materials produce visible light when exposed to electromagnetic radiation.

Fluorescent bulbs are the light of choice in most buildings simply because they are cheap and cool. Fluorescent light is the least preferred light by video and photography professionals for the following reasons:

- The amount of light put out is not great enough
- Unless a fluorescent fixture has a special ballast (power supply), it will flicker. Although not generally noticeable to the human eye, the flicker is visible to the camera (just as a standard computer monitor's refresh rate can be seen on television) and does affect your codec (coder/decoder) performance
- The color value/ temperature (the output of red, green, and blue light) is not consistent enough to render a high quality image

Halogen Lamps

Halogen lamps are a type of incandescent light that contains chemicals called halogens in the gas fill.

For the same reasons mentioned regarding incandescent light, halogen lamps are not the best choice for lighting a "closed-in room" because they get very hot and they draw excessive amounts of power.

Characteristics of Light

The larger the surface area of your light source, the "softer" it will be.

Hard light casts a dark shadow that has a well-defined sharp edge. When hard light is used to illuminate a face, imperfections in the skin stand out. The result is less than flattering. It can be generalized that most bright light sources, emanating from a small source will be "hard."

Soft light (diffused) has the opposite effect of hard light, especially when lighting angles are also controlled. A skylight is an example of a soft light.

Brightness and Contrast

Brightness is the perceived intensity of light that reaches our eyes.

Contrast helps us distinguish shapes, edges, and details on the surface of objects. It is the ratio between the brightest and the darkest tone in a scene. In most circumstances, contrast will help clarify an image. Keep in mind that our eyes see a contrast ratio of 1:200 where the video camera can only sees a ratio of 1:5. If the contrast in your image greater than that, the tone above or below will go completely black or white.

Amount of Light

Light intensity is measured in foot-candles (FC). One foot-candle offers illumination equal to the amount of direct light thrown by one candle, one foot away, on a square foot of surface. Higher light, or foot-candle, levels reduce "noise" in the video signal (which appears as fine-grained static in the displayed image).

The drop ceilings commonly found in most office suites are nine feet high. With the usual fluorescent fixtures, the average foot-candle reading taken 4.5 feet from the ceiling will be between 12 and 30 foot-candles.

Points of reference:

- sunlight on an average day ranges from 3000v to 10,000 FC
- TV studios are lit at about 150 FC
- a bright office has about 35 FC of illumination
- moonlight represents about 0.01 FC

Optimal foot-candles for videoconferencing are between 40-60 FC.

Angle of Light

Most soon-to-be-videoconferencing rooms probably have lighting similar to one of those illustrated in Figure 1.

Most conference rooms have direct overhead fixtures that direct light straight down on the surface of the conference table and the participants head. This causes the undesirable facial shadows (dark eye sockets shaded areas under chins and noses) and excessive highlights.

Uplighting, is the best choice. It essentially uses the ceiling to create a giant "soft box" effect. With enough power, this style of light can render the foot-candles necessary to create a better picture.

However, the drawback is that the light is so uniform, that it winds up hurting the contrast and creates a two dimensional looking image instead of a three-dimensional image.

A Special Note Regarding Track Lighting

Track lighting, although excellent for enhancing the effect of good lighting, has several problems, when used as the main source.

The small bright cans create light that is too hard.

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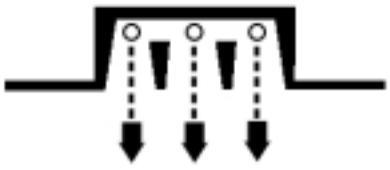
Figure 1: Types of Lighting

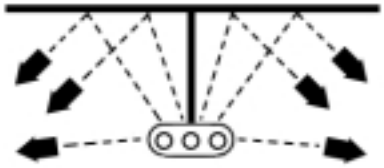
Typical fluorescent luminaire with prismatic lens

Direct Lighting- *fluorescent luminaire with prismatic lens.* The fluorescent luminaire fitted with a prismatic lens is the most common and least expensive office light fixture.



Typical fluorescent luminaire with parabolic louvers

Direct Lighting



Typical fluorescent uplighting

Indirect Lighting- Fixtures direct light upward, using lenses and reflectors to spread the light out over the usrface of the ceiling. The ceiling, in turn, reflects the light down into the office environment.

Ether

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the hallmark of a classically educated mind?

I know my students not by their faces or their seat position in a vast lecture auditorium (as is the case on many campuses today), I know them by the words and ideas they express in their weekly assignments that everyone reads online. I am not a Sage on the Stage. I am a Guide on the Side.

Often what my students "say" or write to one another or the way they incorporate their work and career ideas into their papers and debates with each other is more practically edifying than anything I could dish their way.

My average college kid is 40 years old. More than a few are in their 50s or their 60s. They are telecommuting to campus because they could not or would not uproot their careers and kids or grand-kids to move to a college campus -- an entity itself modeled after the learning monasteries of medieval times.

Many of them know what they are talking about; more so they know what they came back to college to learn. A cyber-education suits them because it respects their ability to define and execute what knowledge is for them.

It encourages them to argue in words their points and their perspectives without the censoring of a professor who might be tempted to step in to "calm down" or "refocus" an otherwise wonderfully enlightening classroom debate.

The idea that the American mind is best taught using a factory model -- where students sit in neat rows, holding up their hands for permission to speak, clock-watching their way through textbooks and lectures that are broken into discrete knowledge widgets -- has never been shown to be an effective way to learn. It has been shown to be a convenient way for colleges to transcript that a standardized body of knowledge has been dutifully delivered. The American factory model. Everyone on the assembly line is delivered the same standardized units of information (i.e. lectures and textbooks); then they all must pass the same quality inspection (i.e. objective exams).

> *"While many people find it hard to imagine a college with no campus, I nowa find it hard to imagine teaching anywhere other than the freedom that is cyberspace."*

Maybe teaching a liberal arts curriculum via a virtual environment makes sense to me because it harkens back to what I learned to be a true liberal arts education. Studying philosophy in Athens, Greece, I was taught that to really learn anything one had to throw away their textbooks and their notebooks; throw away these memory tools -- in their place rely instead on one's native ability to critically think through a situation.

I was taught what Plato knew to be the nature of a true liberal education. Learning is independent of time and place. Real education does not occur on a campus. It occurs in the minds of the students. Good students eschew memory -- a simple learning trick -- in favor of developing their abilities to debate and argue their way through an issue. In short, good students develop their abilities to fling words at each other with amazing intellectual accuracy.

Plato and his students wandered around Athens arguing their way into understanding. While my cyber-students do have textbooks, their books are learning aides -- not the only pool of knowledge they will drink from.

Instead, they will drink also from the collaborative efforts of online debates, conferences, and papers. They will think about what they have to say, and they will come to class each week amazingly prepared to argue and type their way into insight.

The virtual university is,oddly enough, just what a classicist like Plato would have practiced had there been an Information Superhighway way back when. Me? I'm in favor of less learning that takes place on-campus and more that takes place in the minds of the participants.

Vicky Phillips hosts the Adult Education & Distance Learner's Resource Center *(www.geteducated.com)*, is co-author of the college guide, *Best Distance Learning Graduate Schools: Earning Your Degree Without Leaving Home*, (The Princeton Review/Random House), and publisher of the *Virtual University Gazette*, a free monthly electronic newsletter for distance learning professionals working at the post-secondary level.

Electronic Surveying: A Decision-Making Tool

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Part Two of Two

Part One of this report explained the process related to the creation and transmission of an electronic survey instrument. This follow-up article explains the process of receiving and analyzing the returned surveys.

Approximately 60 individuals (a 25 percent return) responded to the "distance learning" e-mail survey. Eighty-five percent had campus-level responsibilities for distance learning. Two individuals encountered problems returning the surveys because their e-mail systems would not process responses. With a survey group this small, the inability to return the survey by e-mail created no serious problem. However, were this software to be used for statewide decision-making, the campuses' e-mail systems would have to be checked for their processing ability.

The demographic information compiled from the responses showed that approximately 50 percent of the respondents were from suburban Southern California campuses. Most respondents were from colleges with fewer than 300 hundred faculty members, and the total respondents were distributed almost equally from colleges with faculties under 100, from 101 to 200, and from 201 to 300.

The project team also wanted a sense of participant's future statewide virtual conferences conducted by the Connecting the Campuses project. (see Table 1). Almost unanimously, the respondents believed that the conferences should continue and that past conferences were adequate or outstanding. When asked about how the conferences should be utilized in the future, respondents saw the best continued purpose as the demonstrations and dissemination of information. Fewer than half saw virtual conferences as a decision-making model.

Table 1: Time frame for consideration of virtual education issues

	Within the next year	Within 1 to 3 years	Beyond 3 years
Developing distance education curriculum	38	27	21
Implementing "best practices" on a larger scale	32	34	19
Sharing of human and technology resources within the system	41	27	21
Establishing guidelines for collecting common research data	23	33	15
Training staff in the uses of technology	47	30	22
Standardizing processes within the system	20	29	19
Defining "student successes"	28	25	16

To understand campus climates and related potential obstacles, the project team members asked respondents to describe their faculty and senior administrators as to how they think about technology. With multiple responses permitted, respondents depicted faculty as more likely to be both leaders and resistors of technology. Fewer respondents used the "resistor" categories to describe senior administrators.

Table 2: Descriptions of faculty and administrators

	Faculty		***Senior Administrators***	
	number	percent	number	percent
Early Adopters	29	48.3%	17	28.3%
Champions	22	36.7%	24	40.0%
Innovators	28	46.7%	9	15.0%
Supporters	45	75.0%	44	73.3%
Feet Draggers	38	63.3%	10	16.7%
Road Blockers	17	28.3%	6	10.0%
Gatekeepers	12	20.0%	9	15.0%

To plan future events, the Connecting the Campuses project team asked respondents to identify distance learning issues and time frames in which to address those issues. Given a list of choices to which multiple responses were possible, over two-thirds of the respondents saw "sharing of human/technology resources within the system" and "training staff in technology uses" as issues needing immediate attention with "training" continuing to be a top-ranked issue beyond a 3-year time frame. The "implementing of best practices on a larger scale" was the top-rated issue in the intermediate time frame.

By testing the process, the project team saw the need to use a more powerful version of the survey software so that considerably more than 100 respondents could be tallied. As a side benefit, the project team saw the potential use of the e-mail survey's use in formative evaluations of projects funded by the Chancellor's Office, particularly with those projects that have identified a statewide impact. Overall, the project team understood how e-mail surveys could establish (1) statewide issues to be resolved, (2) time frames for those issues, and (3) methodology for narrowing the focus of the work to be accomplished during decisionmaking.

Lighting

(continued from page 5)

Shadows are sharp and prominent, especially on the walls or white-board behind a participant.

Bright track lighting is uncomfortable to look at, and will cause some people to squint.

Color of Light

When professionals discuss room lighting color, they talk in terms of a light's temperature, which is measured in degrees Kelvin (K). The whiter the light, the higher the temperature; lower temperatures take on a reddish cast. Color temperature does not affect the brightness of the light.

Optimum color temperature of light varies between each camera or video system. The majority of video systems will perform best using 3200k. If the room appears particularly greenish/yellow, 5500K bulbs will work best

.

Solutions

In an effort to alleviate some of he problems mentioned above, specialized lighting systems have been developed especially for videoconferencing needs. By incorporating increased power supply, full-spectrum color, diffused panels, and properly angled placement, these systems can create optimum lighting environments.

For more information, visit ITRIX online at *http://www.itrix.com*

Part Two will appear next month, and will include:

- White-balance control and color
- Furniture and accessory placement
- Checklist for a video-friendly room

Regional Centers

(continued from page 1)

particularly for courses that meet program and graduation requirements.

3. To evolve a mix of online and site-based learning experiences that most effectively use technology to expand access, increase instructional effectiveness, and meet emerging curricular needs, especially for the disabled and for those who most need the California Community Colleges.

4. To ensure that faculty, mentors, instructional designers, technical support and other staff the capacity to develop, support, and continuously improve the structures and processes that deliver such experiences.

Further information can be found at: *http://netser.com/cvudraftrfa*

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