

## A Start-Up Guide to



# Distance Learning

DISTANCE LEARNING IS CHANGING THE TRAINING HORIZON. SO, WHERE DO YOU START? HOW DO YOU SELECT AND USE THE TECHNOLOGY? WHERE CAN YOU FIND RESOURCES? PERHAPS LEWIS CARROLL SUMMED IT UP BEST: BEGIN AT THE BEGINNING.

**N**ICHOLAS NEGROPONTE, *Wired* columnist and author of *Being Digital*, tells us: "Distance is irrelevant: New York to London is only five miles farther than New York to Newark via satellite." What a concept.

Distance learning is clearly changing the way we do business. Plain and simple: Workplace technology affects training delivery. Organizations still rely heavily on such traditional means as lecture and videotapes to deliver training, but there's growing, widespread interest in using such tools as the Internet, videoconferencing, and corporate networks.

One factor in this shift to technology-based training is cost. Distance learning enables companies to reach more employees at a lower cost. Another factor is the more competitive business environment. Using technologies to deliver training at a distance can help organizations

- ▶ cut training expenses
- ▶ improve productivity
- ▶ reduce trainee backlogs without increasing resources significantly
- ▶ increase access to subject matter experts
- ▶ make training more flexible
- ▶ access alternative instructional resources.

Here's what you need to know to get started.

### The trends and tools

Ford Motor, AT&T, Oracle, and Unisys are just some companies that have documented proof that distance learning is effective. Such organizations are using distance learning to enhance training, marketing, and communications.

Workers are using distance learning to reinforce their skills. They're asking: What do I want to learn and need to learn? What skills will help me now or later? They're controlling their careers with courses and tools in self-directed learning on the job, at home, or on the road. That means they use computers, video, audio, and other technologies to learn. Classroom training is becoming an option rather than the rule.

Training departments are designing and delivering courses on technical skills and critical thinking. The "new" trainers help workers learn on or off the job—by assessing training needs, by providing subject content and resources, and by challenging and guiding trainees before, during, and after a course has been delivered by distance learning.

Distance learning is adaptable to most all traditional training approaches, including lecture, videotapes, and role play. Distance learning can also incorporate any technology, as long as a structured two-way communication is created for learner-trainer interaction.



### DISTANCE LEARNING TECHNOLOGIES

Here are some different types of distance learning technologies.

#### Interactive

- Audioconference
- Audiographics
- Videoconferencing
- Computer conference (Internet, email)
- Two-way satellite/microwave
- Desktop videoconference
- One-way satellite with keypad
- Voicemail
- Virtual reality

#### Noninteractive\*

- One-way satellite/microwave
- Radio
- Printed materials
- Audiotape
- Computer disk/CD-ROM/laser disc
- Videotape
- Cable/broadcast television

\* Requires phone, fax, or one of the interactive technologies to create a two-way communication channel for distance learning.

Source: adapted from *Info-line: Effective Distance Learning*, edited by Mary O'Neill (ASTD, July 1996)



## CHECKLIST: WHICH TECHNOLOGY?

|   | Pros  | Cons  | Will It Work for You?    |
|---|---|---|--------------------------|
| <b>Audioconference.</b> Training through telephone connection. Audio only; no visual. Send pre-work via mail, email, or fax in advance. Discuss as a group in an audioconference with multiple sites.   | Inexpensive and relatively easy to set up                       | No visual cues  | <input type="checkbox"/> |
| <b>Audiographics.</b> Computer and phone linkage. Participants listen and respond to the trainer via speaker phone, while observing computer screen training. They respond with a writing whiteboard linked to their computer screens. All sites linked "live" at same time. All linkage via phone lines. | Includes visual and auditory components; very interactive       | Requires purchase of software and whiteboard; need expert to set up       | <input type="checkbox"/> |
| <b>Videoconferencing.</b> Television screens at all sites with camera and microphones to transmit visual images and audio. Trainer and participants can see and hear each other at multiple sites. Data and graphics can also be transmitted.   | Two-way video, audio, and data; very interactive                | Cost to purchase equipment can be high; consider renting                  | <input type="checkbox"/> |
| <b>Desktop Videoconference.</b> Same as group videoconference, but participants sit at a computer with camera and microphone attached. Can see trainer, other participants, and data on computer screen, and hear/participate in all conversations.   | Participants can take part at their own desks; very interactive | New technology; not readily available, but low cost                       | <input type="checkbox"/> |
| <b>Computer Conference (Internet, email).</b> Training via email or the Internet. Training material sent to participants online; they read and respond via online discussions (one-way: copy each other on responses or two-way: use a "live chat" function and "talk" at same time online).              | Easy to design and implement; very effective for small classes  | Must have email or Internet access; need accountability for participation | <input type="checkbox"/> |
| <b>One-Way Satellite/Microwave.</b> Training program delivered via satellite or microwave link. Participants watch, then respond via phone, fax, or email. (Microwave links are becoming outdated, due to cost and distance limitations.)   | Good for short, informational-type courses with wide audiences  | Can be boring if not designed correctly; old method                       | <input type="checkbox"/> |
| <b>Two-Way Satellite/Microwave.</b> Same as above, but with television cameras at participants' end so there is two-way video and audio. Similar to videoconferencing, but with different equipment.  | Two-way video and audio; very interactive                       | Incredibly expensive; rarely done   | <input type="checkbox"/> |
| <b>One-Way Satellite with Keypad.</b> Same as one-way satellite above, but with an electronic keypad as a response tool for participants. They respond to the trainer by selecting their choice on the keypad. Answers are displayed on a TV screen at all sites.   | More interactive than one-way; participants prefer it           | Cost goes up with keypads; installation issues                            | <input type="checkbox"/> |

Technologies can be categorized as interactive or noninteractive. Interactive technologies have a two-way communication channel built in. Noninteractive technologies have one-way communication capabilities. By combining any of the noninteractive technologies with a phone, fax, or interactive technology, you can create a distance learning environment. (See the box, Distance Learning Technologies, on page 39.)

Coaching trainees through the repair of a complex machine may require two-way video capability plus whiteboard sketches. A training meeting may work with just two-way audio and a single camera for slides.

You can use a technology checklist to weigh your goals against tool availability, appropriateness, and cost restraints. Whatever the application, distance learning doesn't force you into a narrow presentation format. (See Checklist: Which Technology?) The bottom line: Will it work for you?

### How to develop a program

It's vital to build interactivity into each distance learning course. The rule of thumb is to add creative and engaging interactive activities every five to seven minutes. The





|  | Pros   | Cons  | Will It Work for You?    |
|--|--|---|--------------------------|
| <b>Voicemail.</b> Trainer sends out material in advance, then asks participants to leave responses on voicemail. Trainer responds to each via voicemail. Can also set up so all participants hear each others' responses and have discussion.  | Easy to implement; low cost; good for short classes            | Need good course design; must install voicemail                   | <input type="checkbox"/> |
| <b>Cable/Broadcast Television.</b> Same as one-way satellite/microwave, but with cable television. Instructor teaches from a TV station. Materials sent in advance; participants respond via phone, fax, or email. Used by many universities for home study.                                     | Good for short, informational-type courses with wide audiences | Can be boring if not designed correctly; old method               | <input type="checkbox"/> |
| <b>Printed Materials.</b> The oldest distance learning technology; send printed materials with course lesson. Participants mail responses back. Trainer provides feedback via mail or phone. This is the model used in correspondence courses.   | Simple to implement; inexpensive                               | Need good course design; participants must be motivated to finish | <input type="checkbox"/> |
| <b>Videotape.</b> Mail out videotape with course. Participants respond to trainer via phone, fax, or email. Older method of distance learning.   | Same as above  | Same as above   | <input type="checkbox"/> |
| <b>Audiotape.</b> Mail out audiotape with course. Participants respond to trainer via phone, fax, or email, or they make own audiotape response. Old method.   | Same as above  | Same as above   | <input type="checkbox"/> |
| <b>Computer Disk/CD-ROM/Laser Disc.</b> Mail out with course. Participants respond to trainer via phone, fax, email, or computer disk.   | Same as above  | Same as above   | <input type="checkbox"/> |
| <b>Radio.</b> Old method. Course was broadcast via radio waves. Participants responded via mail or phone. Used in Australia to teach students in the outback.  | Can reach many people across vast distances                    | Outdated method; new alternatives have replaced it                | <input type="checkbox"/> |
| <b>Virtual Reality.</b> Participants placed in a realistic situation to learn a new skill where they must respond verbally, visually, and kinesthetically. Involves computer simulation of some type. A flight simulator is a good example. Other equipment includes virtual reality technology. | Taps into all senses and learning styles; exciting experience  | Technology very new; costs very high; not yet readily available   | <input type="checkbox"/> |

Source: adapted from *Info-line: Effective Distance Learning*, edited by Mary O'Neill (ASTD, July 1996)

Interactivity Guide Pyramid can help you develop and deliver a well-balanced program. (See the figure on page 42.)

The Interactivity Guide Pyramid works like a food guide pyramid. For example, choose

- ▶ 3 to 5 servings of activities from the Personalize Group
  - ▶ 3 to 4 servings of activities from the Participate Group
  - ▶ 2 to 3 servings of activities from the Show Group
  - ▶ 3 to 5 servings from the Question Group
  - ▶ sparingly from the Presentation Group (if a

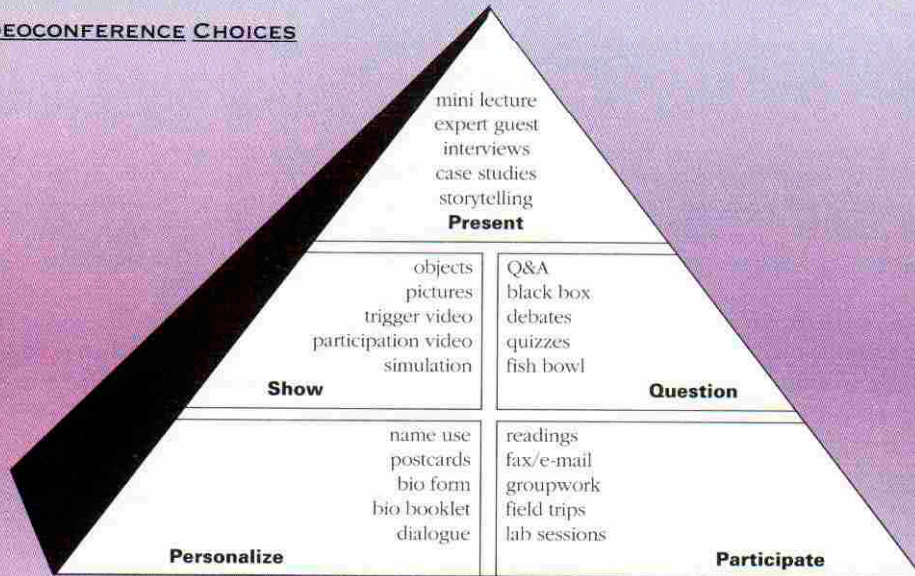
one-way presentation) or generously (if mixed with activities from the other groups).

A compressed-video environment leads logically to an emphasis on interaction. Interactivity can involve participants at remote sites, and off-site for communication and individual or group projects. The activities should be short, intense, well-planned, meaningful, enjoyable, and involving. They should also match objectives. Interactivity spans the spectrum from simple to complex. It includes ways to present, personalize, show, participate, and question.

A course development team consists of an instructional designer and instructional developer, a technology

## INTERACTIVITY GUIDE PYRAMID

### GUIDE TO VIDEOCONFERENCE CHOICES



*Interactivity Guide Pyramid developed by Mavis Monson, UW-Extension, 1995, based on the Food Guide Pyramid (U.S. Department of Agriculture and Department of Health and Human Services, 1993); appears in Leberman, Rosemary (1996), The Essential Compressed Video Guide: 7 Keys to Success, Instructional Communications Systems, UW-Extension; Madison, Wisconsin (p.23). Interactivity Spectrum developed by Rosemary Leberman, UW-Extension, 1995, appears in Leberman, Rosemary (1996), The Essential Compressed Video Guide: 7 Keys to Success, Instructional Communications Systems, UW-Extension; Madison, Wisconsin (p.19). Permission to reprint these copyrighted materials is given by Instructional Communications Systems.*

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## DELIVERY TIPS

### HERE ARE SOME TIPS FOR EFFECTIVE DISTANCE LEARNING:

- **Conduct** a pilot of the first session.
- **Train** the trainer or instructor on how to facilitate via the technology. That may require new skills and new ways to promote interaction.
- **Rehearse**, even before the pilot, so that the trainer or instructor can become familiar and comfortable with the new platform. Some training professionals have described distance learning as "training in the dark" because of the lack of visual—and sometimes auditory—cues. It takes a new set of skills to train effectively using the various technologies.

• **Provide** communication protocols. The trainer will need to give clear instructions in advance on how the interaction and activities will take place via distance learning—in other words, who will talk when. For example, in an online chat session, the trainer will type in a question. To answer, a trainee must type an exclamation point (!) to show

that he or she wants to respond. Participants must also signal when they're finished. The trainer may need to call on people by name to ensure that everyone participates.

• **Promote** interaction between participants through various exercises, discussion, and work between sessions. For example, as homework, participants at each site can prepare a presentation for the other sites and deliver it through voicemail, email, a videoconference, or as overheads faxed to the trainer to present via satellite or cable television.

• **Ensure** that the trainer knows the names of the site facilitators and introduces them at the beginning of a course.

• **Have** a course roster and introductions. The trainer should have a list of all of the participants at each site and make sure that everyone gets a chance to introduce themselves.

Source: adapted from *Info-line: Effective Distance Learning*, edited by Mary O'Neill (ASTD, July 1996)

## KNOW THE LINGO!

### HERE'S A GLOSSARY OF DISTANCE LEARNING TERMS:

**Audiographics.** The transmission of images and graphics over standard telephone lines to enhance audio interaction.

**Bandwidth.** The range of frequencies that can be carried by a telecommunications medium without undue distortion.

**Bridge.** A hardware device or software product that interconnects three or more telephone lines; used to link multiple locations.

**Broadband.** A telecommunications medium that carries high-frequency signals, such as television frequencies.

**Compressed video.** Images that have been compressed to eliminate redundant information and reduce bandwidth required to transmit them.

**Downlink.** To beam signals from a satellite to Earth stations. Also, an antenna that receives satellite signals.

**H.320/H.323/H.324.** Standards set by the International Telecommunications Union to guarantee that videoconferencing systems made by different suppliers will work together over data networks, local area networks, the Internet, and ordinary telephone networks.

**ISDN.** Integrated Services Digital Network—digital telecommunication standards that allow for an integrated transmission of voice, video, and data.

**Multiplexing.** The technique of sending multiple information streams on a single carrier at the same time.

**Multipoint Conference Unit (MCU).** The bridge linking three or more videoconferencing locations.

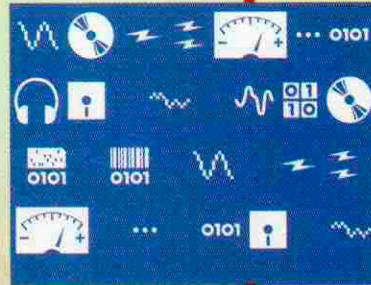
**Narrowband.** A telecommunications medium that carries low-frequency signals, such as telephone voice signals.

**T.120.** An interoperability standard set by the ITU that describes how computers communicate during a data conference.

**TCP/IP.** Transmission Control Protocol/Internet Protocol—the basic program or suite of protocols used to handle Internet data.

**VSAT.** Very Small Aperture Terminal—a small Earth station (signal receptor) used for satellite communications.

**Videoconferencing.** Conferencing in which participants see and hear each other via two-way or multipoint connections.



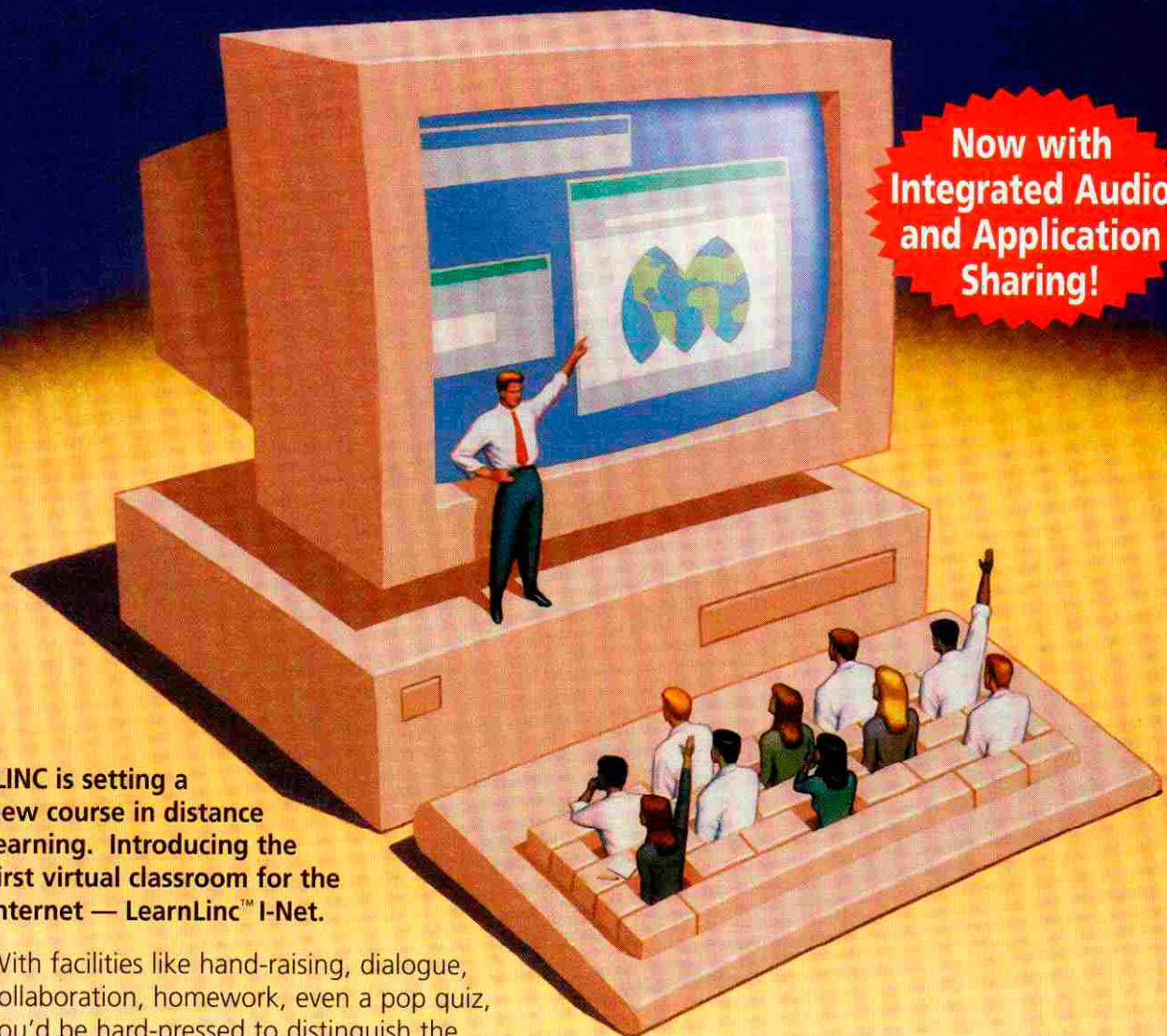
support person, a trainer or an instructor, distant-site facilitators, a materials supporter and facilities supporter, and a management sponsor. That team develops new courses or revises existing courses to be used with a selected technology in distance learning. Adaptation may include breaking a course into small modules, turning overheads into computer graphics, or designing new interactive exercises to fit the technology.

Let's say that you've decided to adapt a supervisory course, Constructive Feedback, to a distance learning format, videoconferencing. The classroom version is four hours long, with short lectures with overheads, a videotape, and role play.

To adapt the course to videoconferencing, you divide it into two two-hour sections and develop a pre-work package for trainees explaining the distance learning format, with pre-reading on constructive feedback. Participants also complete a



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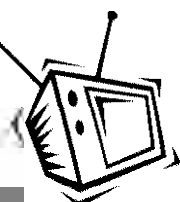
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short pre-assessment, which they fax or email back. You convert the overheads to a colorful videographics presentation to be shown on a videoconferencing computer. You can show the videotape as is. For the role play, the trainer or instructor explains the exercise. He or she mutes distant-site microphones as trainees practice. The site facilitators observe

the practice and provide feedback. The instructor observes the skill practice via a camera. The participants regroup to debrief.

### No more talking heads

Lorne Parker, president of the Teletraining Institute in Stillwater, Oklahoma, emphasizes that teaching via teletraining can and should be as lively and interesting as a face-to-face presentation. (See the box, Tips for Smoother Teletraining.) He offers the following guidelines for blending one's personal style with teletraining techniques.

▶ **Incorporate "humanizing" into your planning.** Humanizing means focusing on the importance of each individual and generating group rapport. It lets participants know that although separated from the trainer by distance, their needs are important. Many may be alone at their locations, may not have used teleconferencing systems before,

### TIPS FOR SMOOTHER TELETRAINING

Here are some tips for teletraining instructors.

#### Improve roll calls

- ▶ Have trainees introduce themselves one at a time and share their expectations.
- ▶ At large sites, have on-the-job facilitators take roll call ahead of time and fax it to you.
- ▶ Try these icebreakers for new courses: Have each trainee give a safety tip or tell what kind of automobile best describes his or her personality.

#### Remember names

- ▶ Draw a map to show the locations and names of participants. Place a check after each name when that person makes a comment.
- ▶ Ask for a photo of each trainee and create a chart with names. Keep it handy during each session.
- ▶ Use file cards to record trainees' names. As the course progresses, jot down notes to help you remember their interests and backgrounds.

#### Use pacing and vocal techniques

- ▶ Vary your inflection. Circle an occasional line of text in your notes to remind you.
- ▶ Pause to draw attention to an important topic. Allow trainees time to reflect and ask questions.

#### Summarize key points frequently.

#### Lecture in 10-minute chunks.

Source: *Teletechniques: Skills for Distance Education Instructors and Course Developers*, by Lorne Parker, Teletraining Institute, 1993

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## WHERE TO FIND TELETRAINING: FACILITIES, PROVIDERS, AND OTHER OPTIONS



YOU DON'T HAVE TO HAVE YOUR OWN DISTANCE LEARNING FACILITIES, EQUIPMENT, OR PEOPLE. HERE'S A SAMPLING OF OPTIONS FOR SMALL- TO MEDIUM-SIZE COMPANIES.

### College and university centers

- Gallaudet University Kellogg Conference Center, Washington, DC, 202.651.6000; <http://www.gallaudet.edu>
- Gregg Conference Center at The American College, Bryn Mawr, Pennsylvania, 215.526.1208; <http://www.amercoll.edu>
- Kempenfelt Conference Centre, Georgian College, Barrie, Ontario, Canada, 705.722.8080
- UCLA Conference Services, Los Angeles, 310.825.5305; <http://www.conferences.ucla.edu>
- University Place Conference Center, Indianapolis, 317.274.3196; <http://www.adaf.iupui.edu/univplac/uplace.htm>

(For a comprehensive list of university conference centers, visit <http://www.theguide.com/guide/college.html>.)

### Distance learning universities

- Colorado State University, Division of Continuing and Distance Learning, <http://www.colostate.edu/Depts/CE>
- Harvard Extension School's Distance Education Program, <http://www.dce.harvard.edu/extension/distanceed>
- New Jersey Institute of Technology, <http://www.njit.edu/dl>
- University of Massachusetts at Dartmouth, <http://www.umassd.edu/cybered/distlearninghome.html>

- University of Phoenix Online, <http://www.uophx.edu/online>
- University of Wisconsin at Madison Distance Education, <http://www.uwex.edu/disted/catalog>

### Commercial options

- AT&T offers multipoint desktop conferencing connections via its Worldworx Services. Contact AT&T, Atlanta, 800.843.3646 (United States only) or 404.529.3099 (outside the United States); <http://www.att.com/worldworx>.
- BellSouth Business Systems extends multipoint audio, video, or document conferencing services. Contact BellSouth, Atlanta, 800.250.7272; <http://www.bellsouth.com/bbs/bizconferencing>.
- GE Spacenet offers VSAT satellite technology that supports video, audio, and data transfer. Contact GE Spacenet, McLean, Virginia, 703.506.2180; <http://www.ge.com/capital/spacenet/vistacst.htm>.
- Hilton Hotels TeleSuite videoconferencing system is found at selected U.S. hotels for real-time conferencing. Contact Hilton, 800.995.9400; <http://www.hilton.com/maintelesuite.html>.
- ILINC offers distance learning software, such as LearnLinc I-Net. Contact ILINC, Troy, New York, 518.283.8799; <http://www.ilinc.com>.



- InterOffice offers hourly videoconferencing services at 17 U.S. locations, 703.934.6090; <http://www.interoffice.com/3techtools/videoconferencing.html>.
- Kinko's has 139 locations (in 38 U.S. states, Japan, Korea, and The Netherlands) with videoconferencing capabilities, 800.254.6567; <http://www.kinkos.com>.
- Marriott Conference Centers have videoconferencing, computer labs, state-of-the-art audiovisual resources, satellite downlinks, and multimedia rooms at 11 U.S. facilities, 800.831.4004 (United States and Canada); <http://www.marriott.com/confcenters>.
- MCI offers the networkMCI Distance Learning Center service. MCI will help you design a program using audioconferencing, document conferencing, or videoconferencing tools, 800.480.3600; <http://www.mci.com/aboutus/products/glossary/conf/distance.shtml>.
- PBS the Business Channel is a telecommunications-based provider of business and professional development learning, with content delivered by satellite, desktop, and Web technologies, Alexandria, Virginia; 888.822.8229; [www.pbsbusinesschannel.com](http://www.pbsbusinesschannel.com).
- Sheraton Hotels offers a Smart Meeting Room at selected U.S. hotels, 617.367.3600; [http://www.sheraton.com/html/company/cor\\_p058.html](http://www.sheraton.com/html/company/cor_p058.html).

and may expect something quite different from the actual teletraining experience. The first minutes of a session are critical. That's when participants get acquainted with the instructor, other trainees, equipment, and ground rules.

Effective humanizing techniques include opening a session with a five-minute icebreaker, explaining the mechanics of the particular setup, and suggesting a protocol for trainees and sites to take turns, such as alphabetical order.

● **Actively promote participation.** Spontaneous interaction among trainees can be even more important in distance education than in traditional settings. It keeps up people's interest and commitment. But participation doesn't just happen; you have to plan for it.

Because people have different comfort levels, it's useful to provide different ways for them to get involved. For instance, the instructor can ask trainees to think about an issue before a discussion begins. Fixed time slots will ensure that everyone gets a turn. The instructor also should let trainees know that even "wrong" answers are legitimate. He or she should provide feedback that shows participants have been heard and understood.

● **Adjust the message style.** Get rid of the talking heads. Take into consideration such adult learning concepts as learner retention, short-segment planning, and media-rich approaches. In teletraining, you must create a relationship between the audio and visual aspects by using various media. For instance, you may need to silence the audio at certain points to give trainees time to "record" a visual message. A color slide or video roll-in can enhance the audio presentation. Print backups reinforce what trainees hear, and they serve as permanent records for review.

● **Seek constant feedback.** Feedback can help you become a better communicator because it answers these questions: Is what I am saying interesting or boring? Does everyone understand what I am saying or showing? Did I leave out any important details? Feedback becomes a stimulus to help you decide your next action.

The easiest way to incorporate feedback into teletraining is to, at each natural division in the material, ask such questions as, "Was the message too fast or too complex?" Just as important, give trainees feedback, such as, "Your group did that well."



## ADDITIONAL RESOURCES

### HERE ARE SOME RESOURCES FOR INFORMATION ON DISTANCE LEARNING:

#### Organizations

AMERICAN CENTER FOR THE STUDY OF DISTANCE EDUCATION  
Pennsylvania State University  
110 Rackley Building  
University Park, PA 16802-3202  
Phone 814.863.3764  
<http://www.cde.psu.edu/acsde>

CENTER FOR DISTANCE LEARNING RESEARCH  
Texas A&M University  
College Station, TX 77843-1588  
Phone 409.862.7574  
<http://www.cdlr.tamu.edu>

DISTANCE EDUCATION AND TRAINING COUNCIL  
1601 18th Street NW  
Washington, DC 20009-2529  
Phone 202.234.5100  
<http://www.detc.org>

DISTANCE LEARNING RESOURCE NETWORK WESTED  
730 Harrison Street  
San Francisco, CA 94107-1214  
Phone 800.662.4160

FEDERAL GOVERNMENT DISTANCE LEARNING ASSOCIATION  
USDLA  
P.O. Box 5129  
Sam Ramon, CA 94583  
Phone 510.606.5160  
<http://www.fgdla.org>

INTERNATIONAL CENTRE FOR DISTANCE LEARNING  
The Open University, Walton Hall  
Milton Keynes  
MK7 6AA  
United Kingdom  
Phone +44.1908.653537  
<http://www.icdl.open.ac.uk>

INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION  
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Phone 541.346.4414  
<http://www.iste.org>

INTERNATIONAL TELECONFERENCING ASSOCIATION  
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SOCIETY FOR APPLIED LEARNING TECHNOLOGIES  
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UNITED STATES DISTANCE LEARNING ASSOCIATION  
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Sam Ramon, CA 94583  
Phone 510.606.5160  
<http://www.usdla.org>

#### Books

● *Creating the Virtual Classroom: Distance Learning With the Internet*, by Lynnette R. Porter (John Wiley & Sons, 1997)

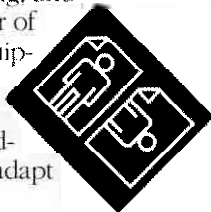
● *Distance Learning: A Step-by-Step Guide for Trainers*, by Karen Mantyla and J. Richard Gividen (ASTD, 1997)

#### Use several instructional approaches.

No single format works in all situations. You get the best results by mixing several styles. Teletraining lends itself to creative formats, such as team teaching, brainstorming, and role play. The number of trainees and sites, equipment, and makeup of the group are just some factors to consider. You may have to adapt on the fly.

Rapid advances in communications technology have given distance learning a high profile. The *Wall Street Journal* pronounced it "a rapidly growing and flexible alternative to traditional learning." Companies have to become more productive to compete with others in a fast-paced market. Distance learning enables them to provide more effective learning to more people—when and where it's needed—while reducing travel and downtime costs, and encouraging a global perspective.

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