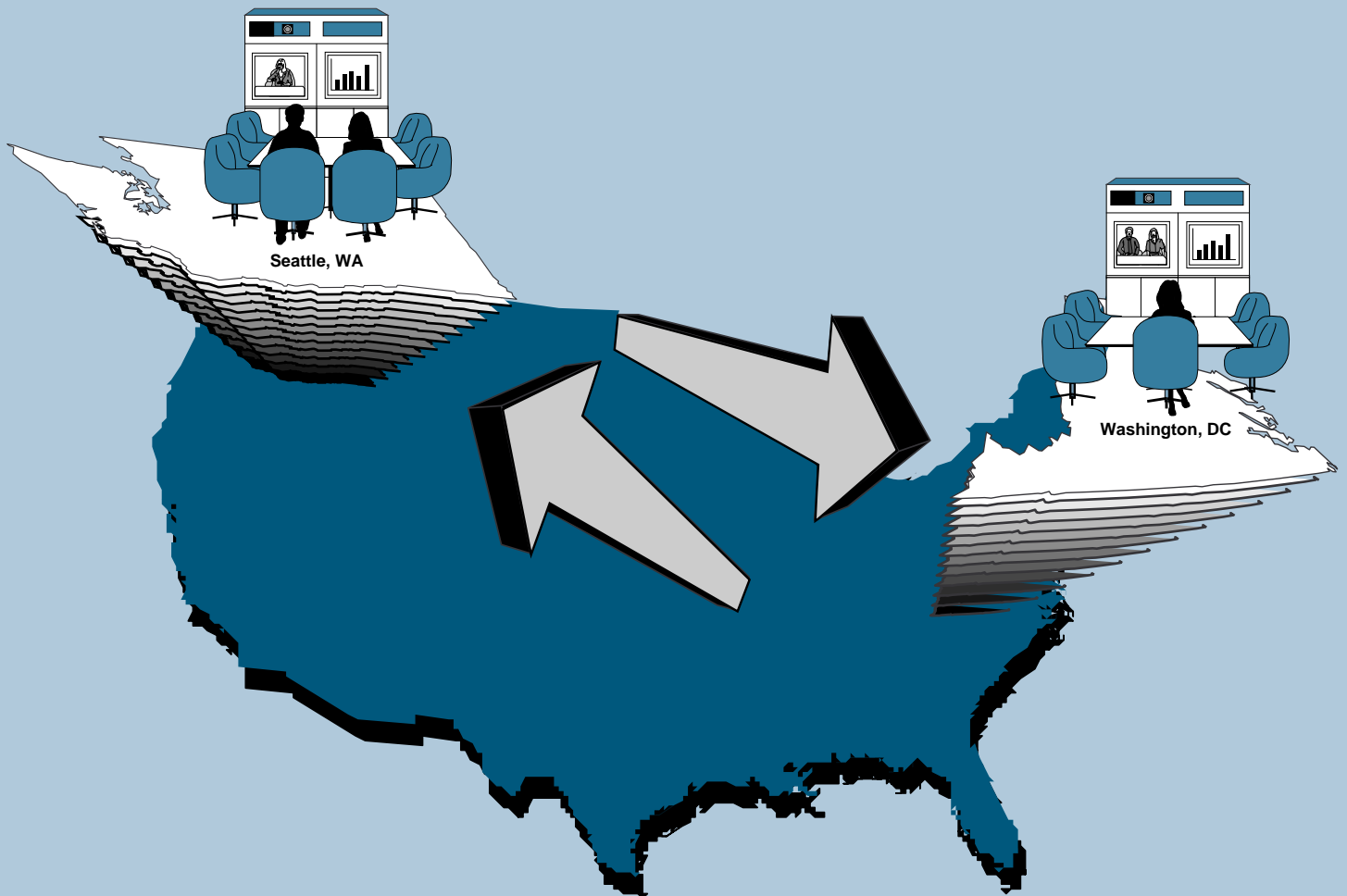


# video TELETRAINING

A Guide to Design, Development, and Use



# Message from the Director

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Now, more than ever, modern technology offers incredible opportunities to reduce costs and increase timeliness as we work together to accomplish GAO's mission. Since videoconferencing was introduced to the agency in 1992, GAO has made increasing use of this technology to conduct business across geographic locations. The Training Institute also uses the technology to deliver training. Delivering training using the videoconferencing technology is called "teletraining."

Teletraining is becoming widely recognized as an effective training delivery strategy in government, academia, and industry. Using teletraining, the classroom is no longer constrained to four walls holding all participants and instructors. With this alternative delivery strategy, the instructor can reach more staff on more subjects more cost-effectively. Its successful implementation, however, requires new skills and attitudes. While design and delivery principles remain the same, the organization and the presentation of the "telecourse" is different from those of the traditional, or resident, classroom delivery.

The purpose of this guide is to help course designers, course managers, instructors, and others adapt to the requirements of teletraining. The guide outlines the steps necessary for successful video teletraining. Key tips for experienced users are also included. While the guide's primary focus is teletraining, the content, tips, checklists, and aids can easily be applied to videoconferencing.



Anne Kalvin Klein  
Director, Training Institute

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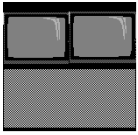
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# Chapter 1: Introduction to Distance Learning and Videoconferencing

This chapter provides an overview of distance learning. Specifically, it

- defines “distance learning,” “instructional television,” and “video teletraining”;
- provides examples of different distance learning applications and technologies used in academia, government, and private industry;
- examines research findings about the effectiveness of, and participant reaction to, distance learning; and
- discusses GAO’s videoconference network, the network’s benefits to the Training Institute, and types of conferences.

## Distance Learning: Instructional Television and Video Teletraining

Distance learning is a teaching and learning situation in which the instructor and the participants are geographically separated and, therefore, rely on electronic devices and print materials for instructional delivery.

Some distance learning media—such as paper-, video-, or computer-based training—can be used at any time. Other media, such as computer conferencing (see glossary) or face-to-face videoconferencing, require participants and instructors to be present at the same time, although they are separated geographically.

GAO uses two forms of distance learning—instructional television (ITV) and video teletraining—which are conducted over GAO's video teletraining network. Although both involve transmission of pictures and sound, they are very different.

ITV distributes via satellite one-way video, two-way audio programs originating at one site to numerous receive sites throughout the United States and Canada. (See fig. 1-1.) Common receive sites are state and federal agencies, private industry, universities, and community colleges. The transmission is usually live rather than prerecorded. The video is one-way: participants see the instructor, but the instructor cannot see the participants. Audio is two-way, but audio responses take place by telephone or electronic-response systems.

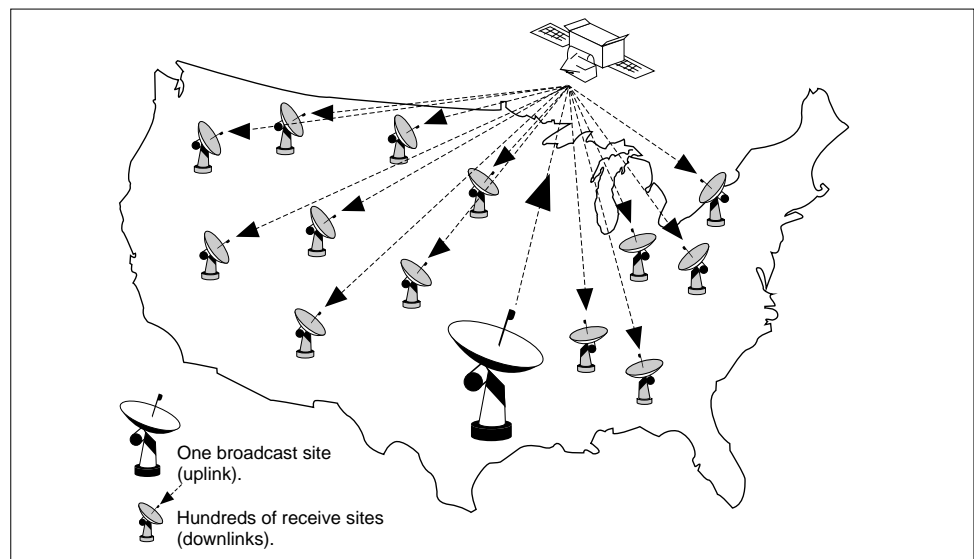


Figure 1-1: Satellite Communication System (Source: "Linking for Learning", Office of Technology Assessment, 1989)

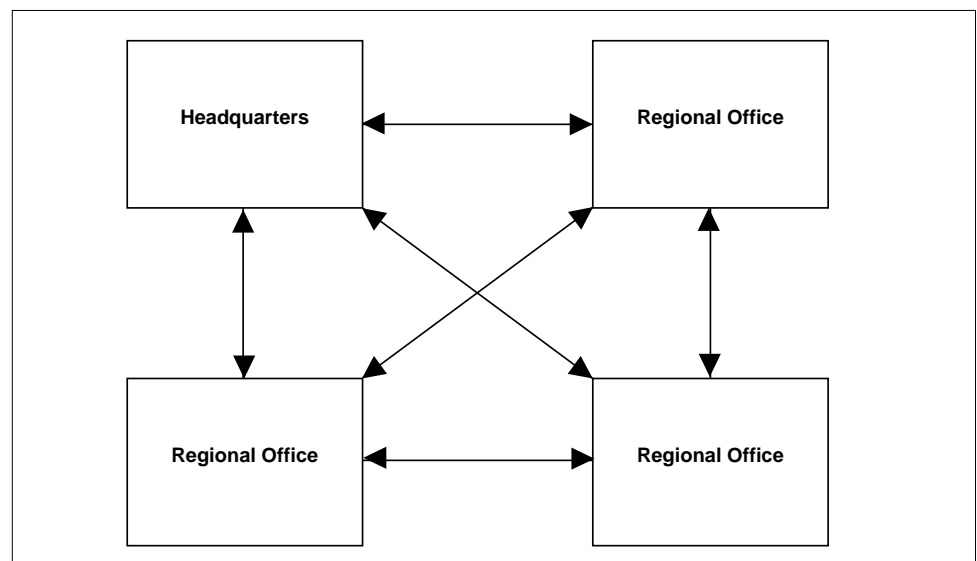
ITV programs include semester-long university courses and short professional development programs that feature nationally known speakers. Content is geared to meet common needs of large populations. GAO receives via satellite courses sponsored by the Public Broadcasting System (PBS), the National Technological University, the Federal Training Network, and other organizations. Broadcasts are one-time offerings lasting from 1 to 5 hours.

Examples of ITV courses that GAO has received include

- “Linking Your TQM Process to Your Business Objectives,”
- “Communications Skills for Supervisors,”
- “Examining Sexual Harassment in the Workplace,” and
- “Understanding Multi-Media.”

Video teletraining and videoconferencing (when referring to meetings) use various telecommunications technology to connect sites at a much lower cost than by satellite. Each connected site can be a broadcast site or a receive site during the same conference. Video is two-way; that is, persons at all sites can see one another, depending on who is speaking. Audio is also two-way. Persons at all sites hear the person speaking, and persons at any site may speak. (See fig. 1-2.)

This guide focuses on video teletraining, which can be used for selected GAO courses. For example, “Referencing GAO Products,” “Applied Statistics Refresher,” and “Producing Organized Writing and Effective Reviewing Refresher” have been offered through video teletraining. The guide also discusses videoconferencing.



*Figure 1-2: An Interactive Network: Participants at All Sites Can See and Hear One Another, One Site at a Time*

## Technical Differences Between Instructional Television and Video Teletraining

Technical differences between ITV and video teletraining are generally determined by

- the equipment for broadcasting and receiving,
- the number of sites that can “receive” training at any one time,
- the ability to communicate with (see and hear) remote sites,
- picture quality,
- sound,
- the personnel involved in delivery, and
- terminology.

The following table outlines typical characteristics of each.

| Instructional Television   | Video Teletraining   |
|--|--|
| <b>Equipment at Instructor Site</b>  |  |
| <p>A studio or a classroom with a separate control room for production personnel. Instructors may use TelePrompTers and wired earpieces.</p> <p>One to four cameras on wheels.</p> <p>Studio monitor, which may or may not show remote participants.</p> <p>Call-in telephone line management, generally run by a production crew.</p> | <p>Standard video teletraining equipment (monitors, cameras, control panel, VCR, and other peripheral devices), located in the conference room or the classroom.</p> <p>An extra camera or monitor may be used for ease of instructor movement and viewing remote sites.</p> |
| <b>Equipment at Participant Site</b>   |  |
| <p>A classroom with monitors mounted on walls or suspended from ceiling.</p> <p>Telephone, fax machine, or participant response system (touch pads) may be used for communicating with instructor.</p>   | <p>Same equipment as instructor room.</p> <p>Participants may operate room equipment, such as cameras, during class.</p> <p>Monitors used for video teletraining can also be used to receive instructional television programs.</p>  |



| <b>Instructional Television (cont'd.)</b>  | <b>Video Teletraining (cont'd.)</b>   |
|--|---|
| <b>Number of Sites</b>   |   |
| Virtually unlimited. Anyone within the receiving area with proper equipment and satellite coordinates can receive.   | Number of sites limited by vendor and equipment capabilities, as well as meeting purpose. (GAO can currently broadcast to all its regional offices.)  |
| <b>Ability to Communicate With Remote Sites</b>  |   |
| <p>Usually one way video, two way audio. Participants see instructor; instructor does not see participants. Instructor hears one participant at a time, unless sites are linked by an audio bridge—like a giant telephone conference call.</p> <p>Feedback devices (audience response systems) are often used.</p> | <p>Two way video, two way audio. If only two locations are connected, instructor and participants can see and hear one another at all times. If more than two locations are connected, instructor and participants see and hear one another, one site at a time.</p> <p>Unrestricted interaction. Most closely resembles live classroom.</p>  |
| <b>Picture Quality</b>   |   |
| Matches that of television—about 30 frames per second. Picture is said to be broadcast quality.  | Is similar to that of television but not quite broadcast quality. Fifteen to 30 frames per second are transmitted. Known as digital compressed video. (See glossary.)   |
| <b>Sound Quality</b>   |   |
| Audio is slightly delayed as sound travels to satellite and receive sites.   | Sound is more instantaneous, more conversational.   |
| <b>Personnel Required</b>  |   |
| Instructor and production crew—producer, director, technical director, audio director, and floor manager.  | Instructor, course manager, and production assistant.   |
| <b>Terminology</b>   |   |
| Instructor site is referred to as uplink, broadcast, or transmit site; remote sites are referred to as downlink or receive sites. Communications take place through dishes, satellites, or transponders.   | Instructor site is referred to as local, near end, origination, transmit, host, or broadcast site; remote sites are referred to as distant rooms, remote rooms, receiving rooms, or far end sites. Communications take place through telephone networks using fiber optics, land lines, or microwaves. However, the type of transmission medium used is determined by the telephone network providers (e.g., MCI and Sprint). |

## Distance Learning in Academia, Government, and Private Industry

In 1987, fewer than 10 states were investing in distance learning; today, virtually all states have an interest and an investment in distance education.

Academia began using televised distance education in 1950. Figure 1-3 illustrates a number of major problems that led to academia's adopting distance learning.

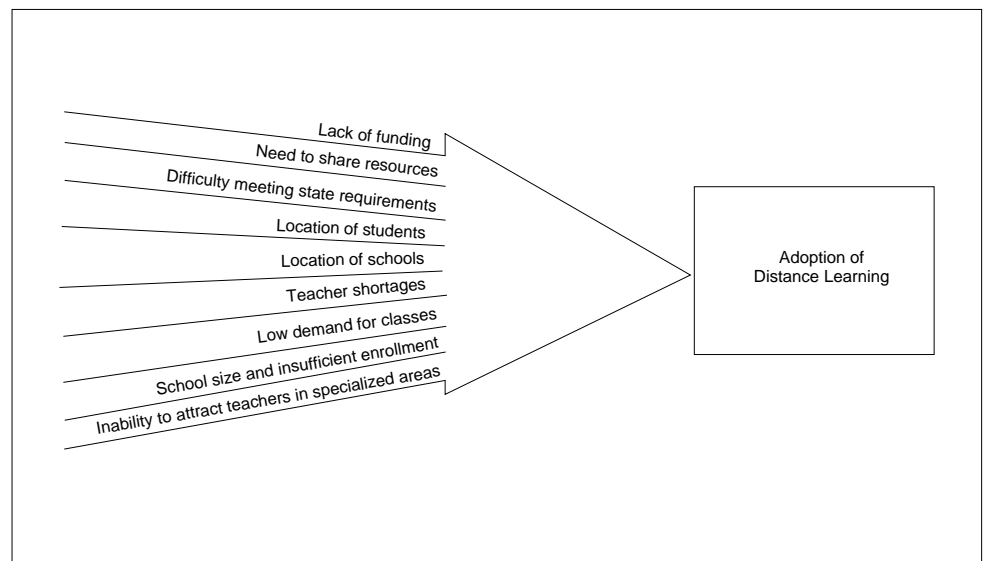


Figure 1-3: Problems in Delivery That Led to Distance Learning

More and more, industry, government, and schools are “partnering” to increase learning opportunities and share resources across wide distances.

## Distance Learning in Primary and Secondary Education: The Jason Project and Star Schools

In primary and secondary education, distance learning programs have been funded to provide courses for underserved or advanced students. Underserved students include students who are economically disadvantaged or physically isolated due to handicap or rural location. Advanced students include students who can benefit from higher-level courses or elective courses that are not available in their schools.

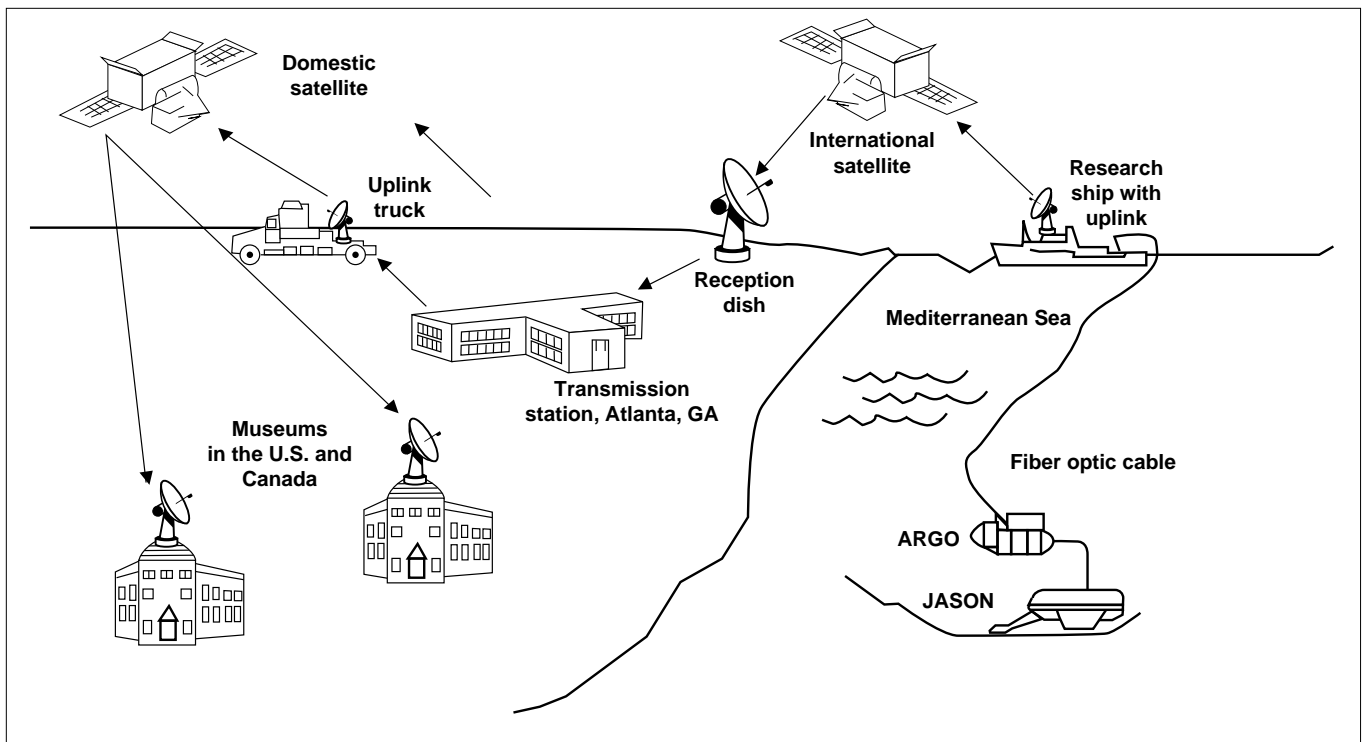


Figure 1-4: Jason Transmission System (Source: National Science Teachers Association, JASON Curriculum, "Linking for Learning", Office of Technology Assessment 1989)

The Jason project was developed to expose students in grades 4-12 to scientific discovery and to stimulate interest in a career in science. Jason is a small robot submarine that takes students on an electronic field trip over the floor of the Mediterranean Sea. (See fig. 1-4.) Using a combination of fiber-optic cable and an international satellite, Jason transmits images of the ocean floor and sunken artifacts to 12 participating science museums in the United States and Canada. Prerecorded sequences can be added at a transmission station in Atlanta, Georgia. The process is delayed only by seconds, and student questions can be answered by oceanographic experts. In 1 month, more than a quarter of a million students participated in the exploration.

A number of organizations in the public and private sectors served as partners in this project:

- The Woods Hole Oceanographic Institute, a nonprofit marine research facility, developed the Jason technology for seafloor exploration.
- The Office of Naval Research funded the Jason vehicle.
- Electronic Data Systems provided technology and equipment to the project.
- Quest Group, Ltd., provided private support for deep-sea exploration.

- Turner Broadcasting provided live and preproduced portions of the learning program.
- The National Geographic Society filmed the project.
- The National Science Foundation, the National Science Teachers Association, and the National Council for the Social Studies provided funding and curriculum development.

Some of the best examples of K-12 distance learning in the United States have been funded under the Star Schools Program Assistance Act. The act encourages school, government, and private industry partnerships that cross state lines to help improve the education system and access to basic and advanced courses for all students. Since its enactment in 1988, the act's \$33.5 million 2-year appropriation has been extended. Grants include funding for projects such as the development and implementation of networks and technology, delivery systems, and curricula. The grantees must generate at least 25 percent of their budgets from nonfederal sources. The Star Schools Program supports operations in 49 states; Washington, D.C.; and Puerto Rico; there are at least 20 originating sites and over 6,000 participating schools. The primary technology used is satellite.

## **Distance Learning in Higher Education: Mind Extension University and the Education Network of Maine**

At colleges, universities, and community colleges, distance learning programs are meeting the needs of an increasing number of working adults whose schedules or locations preclude taking classes at specific times and sites. Students access courses either in their homes or at local schools, community colleges, or other receiving locations. This allows them more flexibility and personal time since regular travel to campuses is no longer necessary.

Mind Extension University (ME/U) is an education network that focuses on higher for-credit education. All credit courses are presented by instructors from prestigious colleges and universities across the nation. Students receive programming on cable television. Students and instructors communicate by mail, phone, computer, and teleconference. Credit is granted by the institution offering the course.

Initial college-level courses offered were in science, fine arts, English, mathematics, foreign languages, and general business. ME/U now offers an M.B.A. program and courses in primary and secondary education. When selecting course offerings, ME/U looks for

- quality of courses,
- instructor ability,
- theoretical and practical experience with instructional television, and
- demonstrated support for instructional television by the institution.

Hundreds of universities are now using this approach to reach students in and out of state.

The Education Network of Maine, run by the University of Maine at Augusta and six other University of Maine campuses, offers off-campus associate degree programs. Receive sites also include technical colleges, off-campus centers, and high schools throughout the state.

On the basis of a needs assessment conducted in 1991, the university developed a faculty and staff support program addressing 39 skills relevant for faculty and staff working with distant students. The support program consists of general sessions—such as workshops and demonstrations, question-and-answer sessions, open houses, and updates on topics—and consultations, in which an instructional designer meets individually with faculty and student services staff to provide assistance in course development and adaptation.

Three practical lessons are shared in the support program:

- Find a balance between the practical and the theoretical.
- Seek advice from experienced faculty and staff—they are the most valuable resources.
- Remain open to viewing instructional design as an iterative, not linear, process (LeBlanc, 1993).

Community colleges, such as Northern Virginia, Kirkwood (Iowa), Miami-Dade (Fla.), and Dallas (Tex.), are turning to the distance learning model to bring more courses to their students and to reach more students.

## Distance Learning in Government: Navy's Electronic Schoolhouse, FEMA's Emergency Education Network, and FAA's Program

One hundred percent of 36 agencies and divisions surveyed by the FAA are interested in interactive distance learning and indicated training budgets are being reduced.  
— Larry Blevins, FAA

The Navy's video teletraining network became operational in 1989. In light of decreasing funds and a reduction in qualified personnel, its goals were to train more persons more cost-effectively and meet the need for quality training with fewer instructors.

Twenty-two courses are currently offered, 8 of which are offered only by video teletraining. Many are soft-skills courses, and most last for at least 1 week (40 hours).

To qualify as a video teletraining instructor at the Navy Electronic Schoolhouse, an instructor must

- modify graphics for presentation by video teletraining,
- provide examples of communication and classroom management techniques,
- observe an ongoing class,
- practice teaching on the network, and
- demonstrate proper use of classroom equipment.

Video teletraining at the Navy Electronic Schoolhouse has provided equal learning at all sites, reduced the backlog of required courses, helped overcome the shortage of expert instructors, and ensured standardization of courses.

Negotiations are under way to establish interoperability with Army networks so that the Navy and the Army can access each other's training programs when appropriate.

EENET is working because it is a federal-state-local partnership effort to provide a needed service to an audience that aggressively supports its own professional development: emergency managers.  
— Bruce Marshall, Director, Educational Technology Division, FEMA

The Federal Emergency Management Agency (FEMA) provides training and education to fire service and emergency management personnel nationwide. FEMA's network, the Emergency Education Network (EENET), uses satellite video broadcast technology that is one-way video and two-way audio—allowing for live interaction between speakers and viewers. EENET is the largest government-supported distance learning network in the United States. FEMA estimates that 125,000 viewers are participating live and another 200,000-250,000 are viewing taped copies on several hundred cable TV systems per year.

Programs are delivered across the country to approximately 14,000 sites. Topics include community emergency exercises, hazardous materials emergencies, evolving trends in fire service emergency medical systems, the impact of natural disasters, and ways to help senior citizens and persons with disabilities in emergencies. Viewers include employees in the fire service, police, state and local government, transportation, and private industry. Programs are typically 4½ hours, although some last up to 40 hours. Participants are sent appropriate materials.

EENET also encourages partnerships with other federal agencies and industry. For example, FEMA worked with the Environmental Protection Agency, the Department of Health and Human Services, the Department of Transportation, and the Chemical Manufacturers' Association to present a workshop on hazardous materials. Additional cooperative efforts have been discussed with the Department of Defense; the Food and Drug Administration; the Department of Energy; private corporations, such as the Hospital Satellite Network; and the Law Enforcement Television Network.

While EENET does not replace the campus learning environment or major courses or workshops, it does provide college-accredited training and education activities that are easily accessible and are presented by nationally recognized experts in emergency management fields, with immediate feedback to, and interaction with, students across the country.

The Federal Aviation Administration (FAA) has also initiated a distance learning program to make training available to an increasingly large audience and within budget constraints and to expand future training opportunities. FAA is examining teletraining options to determine which video-based technology or combination of technologies will be most cost-effective and efficient to train thousands of geographically dispersed employees. Demonstrations and pilot courses are expected to begin in fiscal year 1995, with distance learning capability implemented in fiscal year 1996. Program success will be determined by the decrease in travel costs and the quality of training that can be delivered (Distance Learning Program Master Plan, prepared for FAA under contract, Nov. 5, 1993).

**F**ortune 500 firms surveyed by the FAA implemented major interactive distance learning programs to reduce costs associated with training.  
— Larry Blevins, FAA

## Distance Learning in Industry: The Ford Motor Company, the American Red Cross, and PBS

**B**etter informed, trained,  
and educated people  
make better decisions.  
— Oscar L. Britton, Ford  
Motor Company

Ford knows that competitive strength in the future depends on the informational and the educational strength of its employees and suppliers. To increase its competitive strength, Ford is taking training to the desktop. Ford plans to use a network with satellite and digital technology, which will lower transmission and reception costs; teaching centers, where instructors conduct the training classes; student response systems to facilitate interaction and testing; and desktop computers for viewing courses. Ford is training its instructors in how to use the video teletraining format.

The American Red Cross uses CROSSLINK to deliver information and training to a 124-site network and 115 associate organizations, which participate in unencrypted programming by special arrangement with downlink sites. Programs cover need-to-know information on organizational issues, biomedical and scientific updates, training and development, and policies and procedures. The formats include technical demonstrations, interactive phone-in sessions, panel discussions, and forums.

Materials used to accompany broadcasts include bulletins, calendars, schedules, viewer feedback forms, participant rosters and assignments, surveys, and exercises.

The Red Cross cites several benefits of distance learning:

- access to professionals and experts,
- consistency,
- ability to communicate in crises,
- development of interactivity and a participatory culture, and
- ability to reach a broad audience.

For example, to encourage a participatory culture—one in which staff provide input to management on organizational values and goals—Red Cross conducted a 7-hour interactive phone-in broadcast from Red Cross headquarters to chapters across the country. The Red Cross also broadcast an HIV/AIDS awareness program, which was made available to colleges, universities, health-based organizations, and other interested groups.



PBS, through its Adult Learning Satellite Service, offers participants access to leading experts who might otherwise be inaccessible. Programs have included speakers such as Peter Drucker, author of *Managing for the Future: The 1990s and Beyond*, and Stephen Covey, author of *The Seven Habits of Highly Effective People*. Interactive workshops, such as “Coaching for Success,” involve groups of participants who conduct off-camera activities during the live satellite broadcasts and share the results on the air with the workshop presenters and panelists.

PBS offers over 60 telecourses in subjects spanning the entire undergraduate curricula. Students can watch the telecourse programs on either a public television station, a college cable station, or videotapes, depending on the arrangements the college or the university has made.

## Effectiveness of Video Teletraining

**D**istance learning is equally effective in applications for adult learners in nontraditional programs and for training of professionals in business, industry, and the military.  
— Michael Moore, Penn State University

Adult students can learn regardless of their location or the technology used. In pretests and posttests and test comparisons with traditional, instructor-led classroom training, the Army Corps of Engineers, the Army HQ Training and Doctrine Command, and the Ford Motor Company all found that participants had achieved course objectives as effectively in courses delivered through video teletraining as through classroom training.

Specifically, Ford found that

- perceptually, participants did not differ on course content and levels of satisfaction with the course content did not differ;
- distance learning was as effective a method for providing instruction as sitting in the university classroom and was more convenient both for the learner and his or her circumstances; and
- staff taking courses by video teletraining achieved better results than those who took them in the classroom.

## Participant Reactions to Video Teletraining

Overall, participant reactions to video teletraining are positive. Basic adult learning principles still apply. Participant satisfaction is affected more by the value they see in the material than by the technology used (Savenye, 1992; Bullen, 1990, p. 50; and Coyle, 1992, p. 58).

Participants' reactions, however, are influenced by the services and technical performance of video teletraining equipment, such as

- audio system and quality,
- timely delivery of materials,
- classroom comfort, and
- other administrative services and coordination among remote sites (Klinger, 1992; Pugh, Parchman, and Simpson, 1992; and Dillon et al, 1992).

If a site's audio system has static or is difficult to hear, if the support materials are incomplete or have not arrived from the transmitting site, or if the remote site is crowded, the training will suffer. Conversely, a technically sound video teletraining session will not make a poor course good, make a weak instructor better, or streamline the curriculum.

## GAO's Videoconferencing Network

Video teletraining uses videoconferencing equipment. The GAO videoconferencing network was introduced in March 1991. A pilot was held to test the impact of technology on work, travel, and budget at selected GAO sites. Washington and Seattle were the first two sites to be connected. Now 13 field offices have videoconference rooms, and headquarters has 4 videoconference rooms.

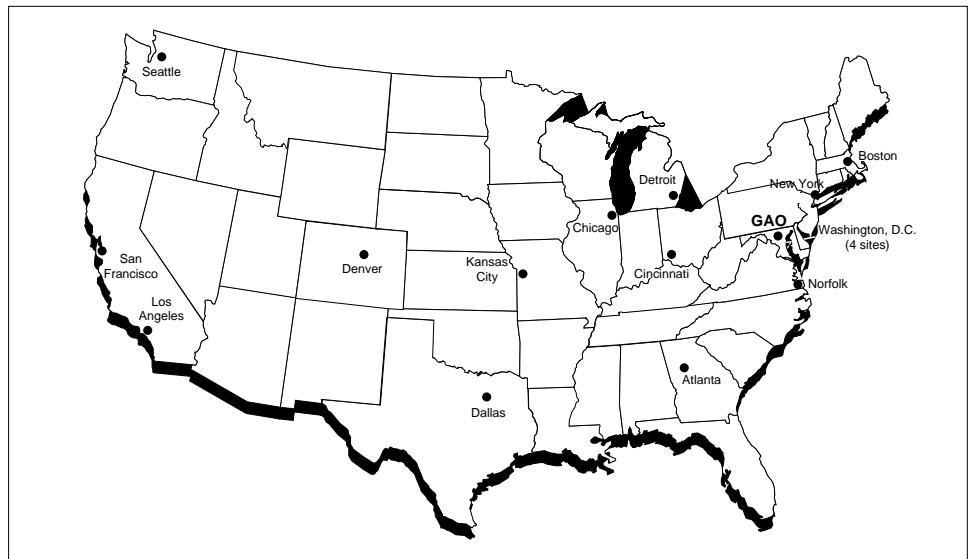


Figure 1-5: Current GAO Videoconference Sites in the United States

GAO’s network is an open—or nondedicated—network, as opposed to a private network. GAO sites can “dial up,” that is, call one another at the time they wish a conference to start. They can also call out to other organizations, provided the non-GAO organization approves and testing has been conducted. MCI provides long-distance and network services to allow the rooms to connect to one another. (See fig. 1-5.)

### GAO Uses of Videoconferencing

Congressional staff have come to headquarters and heard briefings presented by field office staff via videoconferencing.

Use of GAO’s videoconferencing system has grown as staff have learned about its availability and its benefits. The number of conferences held has more than tripled from June 1993 to June 1994; usage was heaviest in March 1994. The number of hours staff used GAO’s system has also increased dramatically. (See fig. 1-6.)

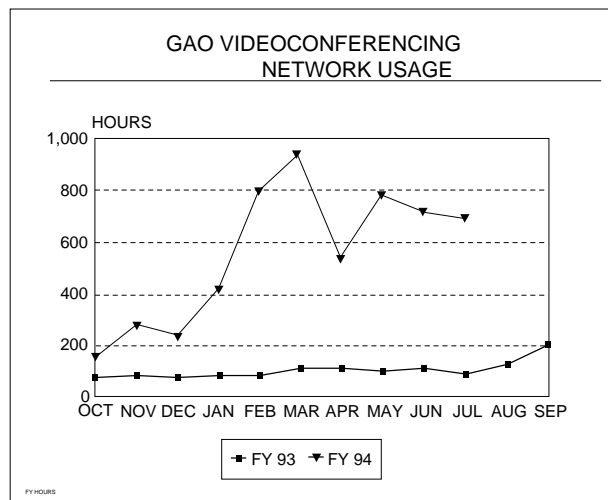


Figure 1-6: Hours Used

Asian Heritage Day was hosted jointly by Seattle and Washington. Speakers, ethnic dances, and music were all transmitted to regional offices, increasing live participation in the event.

Typical GAO videoconferencing uses include

- training,
- staff and core group meetings,
- special events,
- project management meetings,
- meetings with the Congress,
- briefings,
- strategic planning meetings, and
- project review meetings.

## Benefits of Videoconferencing and Video Teletraining

Videoconferencing can improve work and product quality, increase productivity, and reduce costs. Work and products have a higher quality because communication is greatly improved. Groups can meet more frequently, critical meetings can be convened in less time, more staff can be involved, response to changing conditions can be rapid, and staff can virtually eliminate miscommunications associated with distance.

Productivity is increased because decisionmaking is accelerated; decisionmaking is accelerated because key persons can be brought together more frequently and quickly and at critical times. Meetings tend to be run more efficiently because the time constraints imposed by reservations and room availability compel participants to plan the meeting more precisely and to stay on track. In addition, morale is improved because employee quality of life is improved—reducing travel reduces fatigue and increases personal time.

Costs are reduced because budget and staff resources can be more strategically allocated and costs associated with travel—airfare, lodging, meals, rental cars, per diem, and downtime—can be reduced.

In addition to the benefits associated with videoconferencing, video teletraining can help GAO and TI manage decreasing training resources and increasing training needs in the following ways:

- new information can be disseminated more quickly;
- participants' needs can be met more quickly through just-in-time training—especially for the field offices;
- more participants can be trained faster without increasing training resources;

- subject matter experts inside and outside GAO can participate in training at little or no cost;
- scheduling is more flexible—course offerings can be delivered at any time during the workday; and
- participants and instructors can remain at their regular workplaces, increasing staff availability and significantly reducing travel time and costs.

## Types of Conferences

There are two types of conferences: point-to-point, where only 2 sites are connected, and multipoint, where 3 to 14 sites can be connected. Conferences that are held with a non-GAO site are called off-net conferences. they can also be either point-to-point or multipoint.

### Point-to-Point Conferences

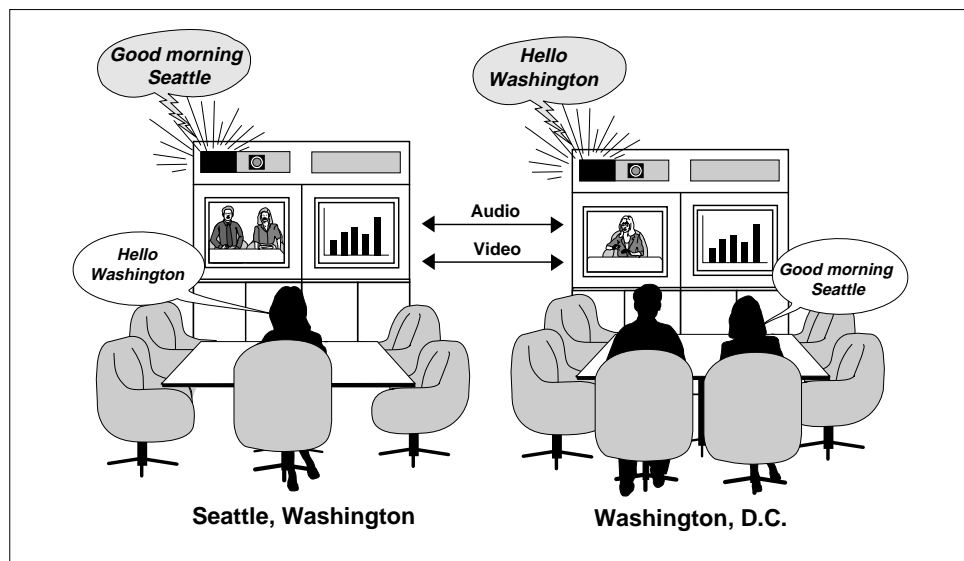


Figure 1-7: Point-to-Point Conference

Point-to-point (see fig. 1-7) is used most often for classes.

- Only two sites are connected.
- Each site sees and hears the other at all times; they both send and receive video and audio signals.
- Both sites are expected to be on the GAO network.

## Multipoint Conferences

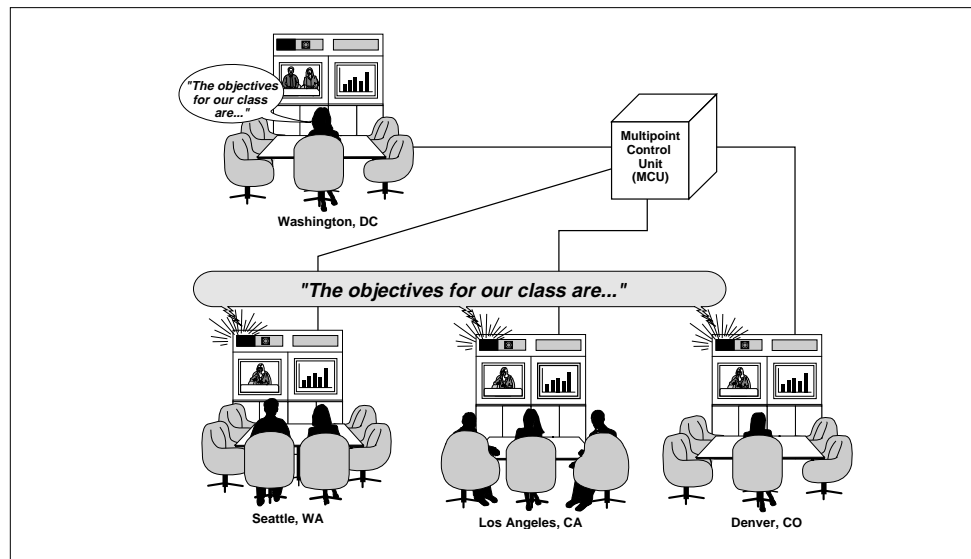


Figure 1-8: Multipoint Conference

Multipoint conferences (see fig. 1-8) are used more frequently for meetings. Multipoint classes can bring about greater savings, but they require more delivery skill, as the instructor must concentrate on more sites.

- Up to 14 sites can be connected.
- Participants at all sites can hear one another at all times and see one another one site at a time.
- The site currently speaking (or broadcasting) is displayed on the left monitor.
- The current speaker views the previous speaker on the left monitor.
- A multipoint control unit (MCU), a piece of equipment that performs video and audio switching as different persons talk, is required. The MCU is owned by a long-distance carrier (such as MCI, Sprint, or AT&T) and is located in the carrier's network; therefore, multipoint conferences are more expensive than point-to-point conferences. Two MCUs can be connected, or "cascaded," allowing up to 14 sites to participate. However, for classes, the number of sites should be kept small (three or four) to maintain interaction between sites.
- Picture changes generally take place according to who is speaking—the site speaking becomes the broadcasting site. This is known as voice-activated switching. (See glossary.) However, if more than one site tries to talk at the same time, the audio and the video images tend to "break up." This is why setting ground rules for multipoint conferences is important. (See ch. 7.)

## Off-Net Conferences

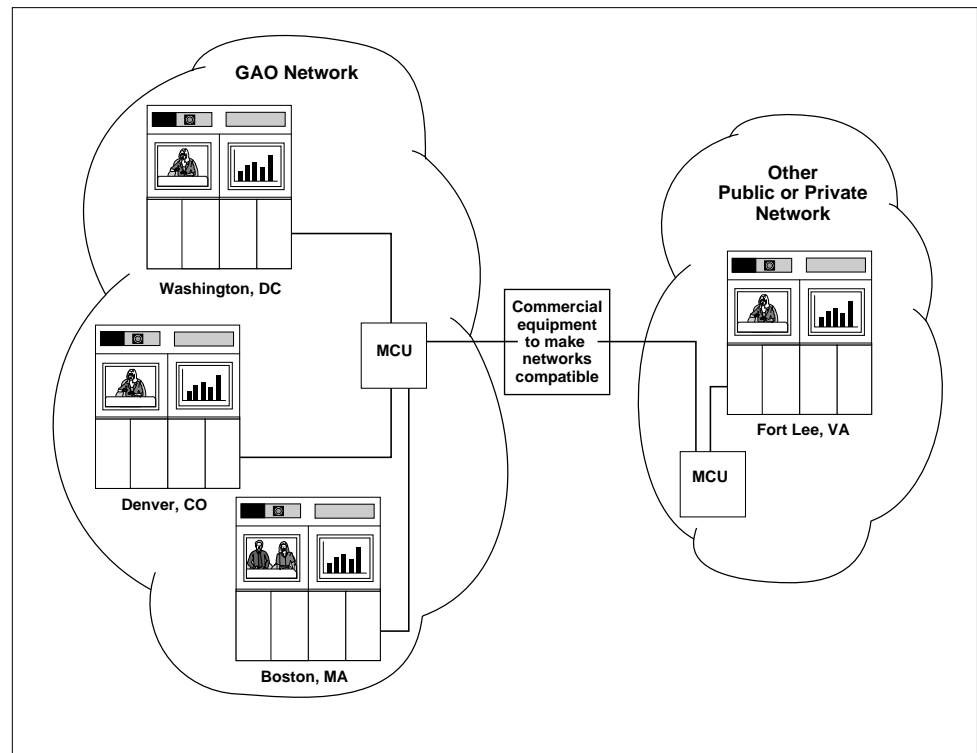


Figure 1-9: Off-Net Conference

An off-net conference typically includes one non-GAO site. (See fig. 1-9.) Having more than one non-GAO site becomes difficult to manage and is much more expensive. Off-net conferences require special scheduling, additional lead time, and equipment and support services owned and operated by a commercial vendor. These requirements exist because

- non-GAO sites may use equipment that is incompatible with the equipment GAO uses, requiring the vendor to provide “conversion” services so that different pieces of equipment can communicate;
- some networks operate at different speeds—a slower speed may affect a session where a videotape will be shown but may only minimally affect a short group discussion;
- different long-distance carriers (like Sprint, MCI, and AT&T) have specific scheduling requirements for reservations and time needed to connect sites; and
- testing must be done before the broadcast to ensure that the vendors can be connected and that all rooms can see and hear one another.

The off-net site may not be able to meet the GAO requirements and vice versa, usually because of lack of technical capabilities. For example, the off-net site may use a brand of codec (see glossary) that does not “talk to” GAO’s brand of codec.

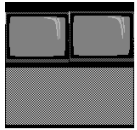
Because special arrangements are necessary, off-net classes are most expensive. They include separate charges for the equipment needed to connect and accommodate the different vendors. In some cases, a room rental fee for use of the off-net conference room may be charged.



## **Chapter 2: Designing and Redesigning Courses for the Video Teletraining Format**

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“Pages 22-65 have been omitted as content on equipment is now out of date.”



## Chapter 3: Troubleshooting

Technical problems can be frustrating and embarrassing, particularly if there are time constraints. Some problems, such as echo or difficulty receiving graphics, might be solved quickly before you contact technical support or while you are waiting for assistance. Other problems, such as lost connections, excessive picture freezing, or loud popping sounds, require technical support immediately.

This chapter provides some preventive measures and describes possible solutions to some common technical problems that may occur during a video teletraining session or a videoconference.

## Preventive Measures

Taking the following measures can help you prevent problems before a session starts or avoid problems during a session, saving time in the long run.

- Schedule time in the conference room to allow for room setup and equipment checks before participants are expected to arrive.
- Using preview, check that all cameras are working. If you can see all the preview images, you can rule out power and cables as sources of problems that may arise.
- Test the audio with remote rooms, and adjust the volume as needed.
- Test sending and receiving still graphics with remote rooms, confirming that all were received.
- Know how to contact technical support.
- Bring to every class a list of sites involved and the telephone number of each remote videoconference room. You can get this list from technical support. Having these numbers handy will allow you to contact remote rooms quickly and inform participants of actions you will take and about how long they need to stand by.

## Troubleshooting Audio Problems

| Problem                                     | Solutions   |
|---|---|
| Muffled, crunching, or rustling sounds      | <p>Clear the table of papers and other objects around the microphones.</p> <p>Make sure that microphones are not obstructed.</p> <p>Make sure that participants are not touching or moving the microphones.</p>   |
| Low or distant sound                        | <p>Check the volume. Increase it, if needed.</p> <p>Make sure that participants are sitting within 5 feet of the microphones and are speaking directly into them (the manufacturer's name or logo should face the person speaking).</p>   |
| Deterioration of sound quality during class | <p>Reset, or "refresh," the audio system. From the main menu, touch LOGO PAGE (at the bottom right of the screen). Touch AUDIO SETUP, then REFRESH. Return to the main menu.</p>  |
| Inability to hear                           | <p>Confirm that the remote room's audio privacy is not on. The privacy light on the control panel should not be blinking.</p> <p>Check the volume; increase it, if needed.</p> <p>Make sure that remote room microphones are properly placed and are plugged in and that the audio power is on.</p> |

| <b>Problem</b>                             | <b>Solutions</b>  |
|--|---|
| Echo                                       | <p>Check that the microphones are not pointed toward the loudspeaker. (Echo is usually caused when sound coming out of the loudspeaker is picked up by the microphone and sent back through the system to other rooms.)</p> <p>Poll sites to identify a room not hearing the echo. Ask someone in that room to turn the volume down. (One of the microphones there is likely picking up incoming sound that is too loud and sending it back through the system.)</p> <p>Open the room system cabinet door and make sure the VCR power is off. VCR volume can compete with the audio system and cause echo, even if the VCR is not being used.</p> |
| Cutoff or “clipping” of words or syllables | <p>Let the on-screen room finish talking before you begin. (Clipping usually occurs when one site is finishing speaking and another is just beginning.)</p> <p>Eliminate background noise and side conversations.</p> <p>Don't talk too loudly.</p>   |

## Troubleshooting Video Problems

| <b>Problem</b>  | <b>Solutions</b>   |
|---|--|
| <p>Blurred or out-of-focus image</p> <p>(This is becoming less of a problem with newer and better equipment.)</p> | <p>Minimize excessive movement by participants and of objects and visual materials.</p> <p>If the camera does not have an auto-focus feature, use the focus buttons on the control panel to sharpen the picture.</p> <p>If only one part of the picture is out of focus, try increasing the light in the room.</p>   |
| Frozen picture on the left monitor  | <p>If the conference has not begun, this is normal. This is usually a frozen image left from the last conference. During the conference, freezing may occur for a few seconds (a glitch). If a still graphic has been sent, a 2- to 3-second freeze is normal.</p> <p>If freezing continues longer than a few seconds and no graphic has been sent, contact technical support.</p> |
| No picture on the left monitor  | <p>If the monitor is black or dark, check the main power switch; if on, check the monitor power switch.</p> <p>Ask someone in the remote room to try selecting different motion sources. The graphics camera may be transmitting a picture of a blank stand, or an option that has not been installed may have been selected.</p>  |
| Outgoing image (local room) on both monitors  | <p>If this occurs after the conference has begun and all sites are connected, contact technical support.</p> <p>If a call is not in progress, the system is in loopback, sending your signal back to the local room. This is normal.</p>   |
| Dim image or excessive shadows  | <p>Try increasing the level of light in the room.</p>  |

## Troubleshooting Graphics Transmission Problems

Not receiving graphics is the most common problem that occurs during a conference. It is usually due to user error. Understanding defaults and knowing which features override others will help you avoid or correct problems.

- The default image for display on the graphics monitor is the last still graphic received. The graphic can be one you sent or one received from another room. (Remember, when you send a graphic, you also receive it on your right monitor.)

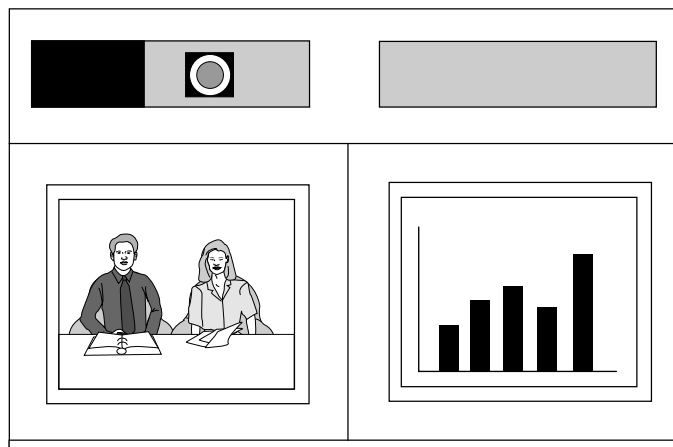


Figure 3-1: Layer 1, Last Graphic Received

- When the PIP feature is activated, the PIP covers a quadrant of the last still graphic received.

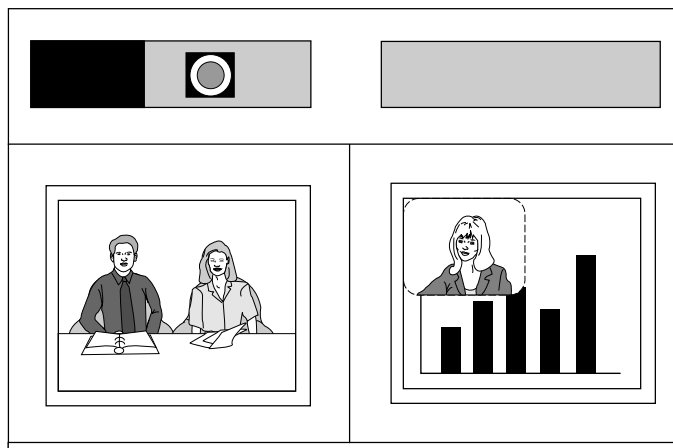


Figure 3-2: Layer 2, PIP Covering One Quarter of Last Graphic Received

- When preview is activated, the preview image covers the whole monitor, like an overlay. You cannot see the PIP or the

still graphic last sent. To again see the PIP or any graphic that is sent, you must “lift off” (remove) the preview to see what is underneath it. This is done by turning preview off (touching the lit PREVIEW button).

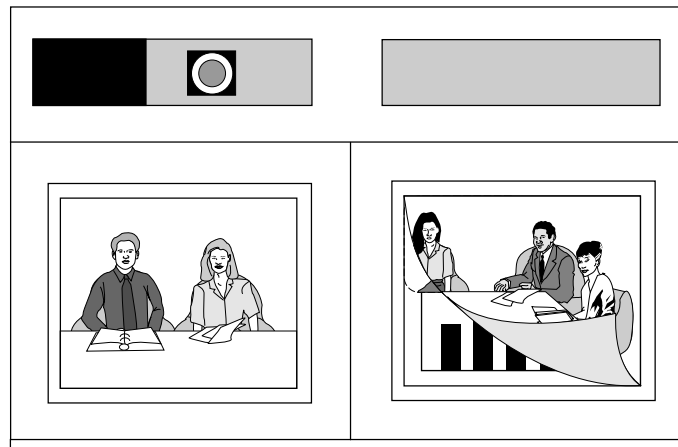


Figure 3-3: Layer 3, Preview Covering PIP and Graphic

| Problem                             | Solution   |
|-------------------------------------|--|
| Failure to receive a graphic        | <p>If a PREVIEW button is lit, touch it to turn it off.</p> <p>Verify that the sender touched the SEND button to transmit the graphic. If so, request a resend.</p>  |
| No preview image of graphic         | <p>Check the control panel. Verify that graphics camera and preview have been selected.</p> <p>Check graphics camera power and cable connections on the back of the camera. (See fig. 3-7.)</p> <p>If the power button is on but the power light is not lit, look for a surge protector and verify that the power is on.</p> |
| Graphic showing on the left monitor | <p>Someone in the remote room probably selected graphics as the main motion source. Ask the person to send the graphic again by touching the SEND button, and remind the person to reselect the main (or the auxiliary) camera.</p>  |

## Troubleshooting Control Panel Problems

| Problem  | Solution   |
|--|--|
| Touching buttons on the control panel has no effect. | <p>Check that the cable is firmly connected to the back of the control panel. (See fig. 3-7.)</p> <p>Make sure that you are depressing the button firmly enough to activate the feature.</p> |
| Some buttons work as expected; others do not.        | <p>Make sure that you have selected the correct function; verify that power and other settings are correct.</p>  |

## Start-up Sequence for the Room System and the Control Panel

Understanding the start-up sequence will help you know how to get to the main menu if you lose power or are instructed to turn the system off to help with troubleshooting. When the room system is turned back on, the audio system needs to be reset. This process, called “training the audio system,” should be performed before you continue with your conference.

To restart the room system and train the audio system, carry out the following steps.

### Step 1

Turn on the main power. A calibration message, followed by CLI's logo, appears on the control panel's screen.

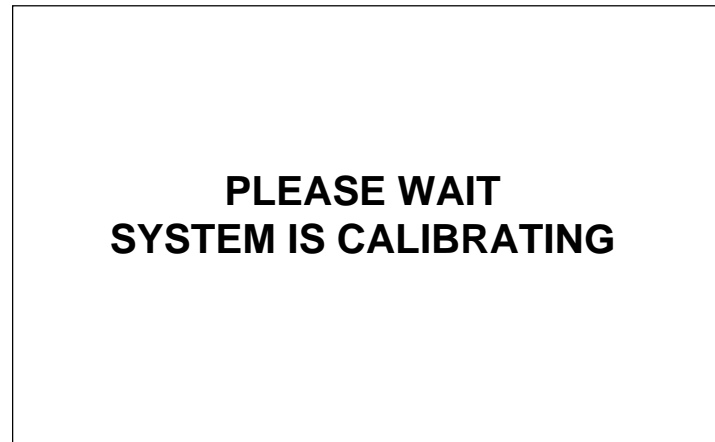


Figure 3-4: Calibration Message

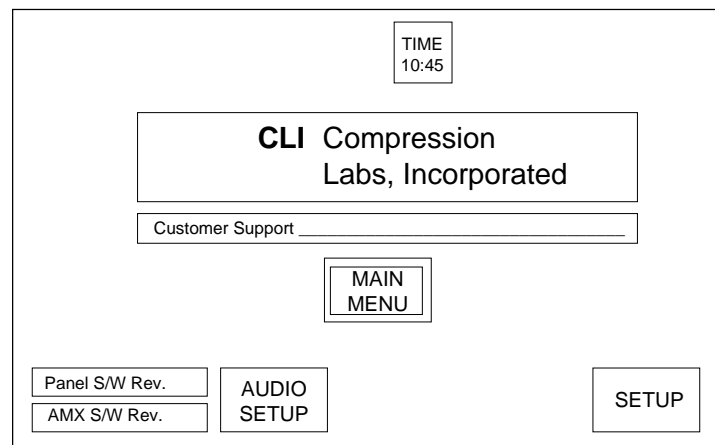


Figure 3-5: CLI Logo Screen

### Step 2

At the logo screen (see fig. 3-5), touch AUDIO SETUP. An audio setup screen is displayed. (Audio setup screens may differ from room to room.)

### Step 3

On the audio setup screen, locate and touch the TRAIN button. Another screen is displayed. Press TRAIN again. Be prepared for a screeching noise. (This procedure may vary, depending on the software. Follow the instructions on the screen.)

The screech is “white noise” that will last 20-30 seconds. During this time, the audio system is adjusting itself to the acoustics of the room. If the system picks up voices, it will continue trying to adjust until it is quiet in the room. Therefore, it is important to be silent.

### Step 4

When the white noise has stopped, training is complete. Touch MAIN MENU.

During the restart, do not touch any other buttons on the control panel until the restart is complete.

## **Troubleshooting Power and Loose Cable Problems**

The ability to identify and correct power problems and loose-cable-connection problems helps decrease downtime. Also, you may be instructed by technical support to turn the room system or codec power off and on. Figures 3-6 and 3-7 show the power switches and cables that need checking most often.



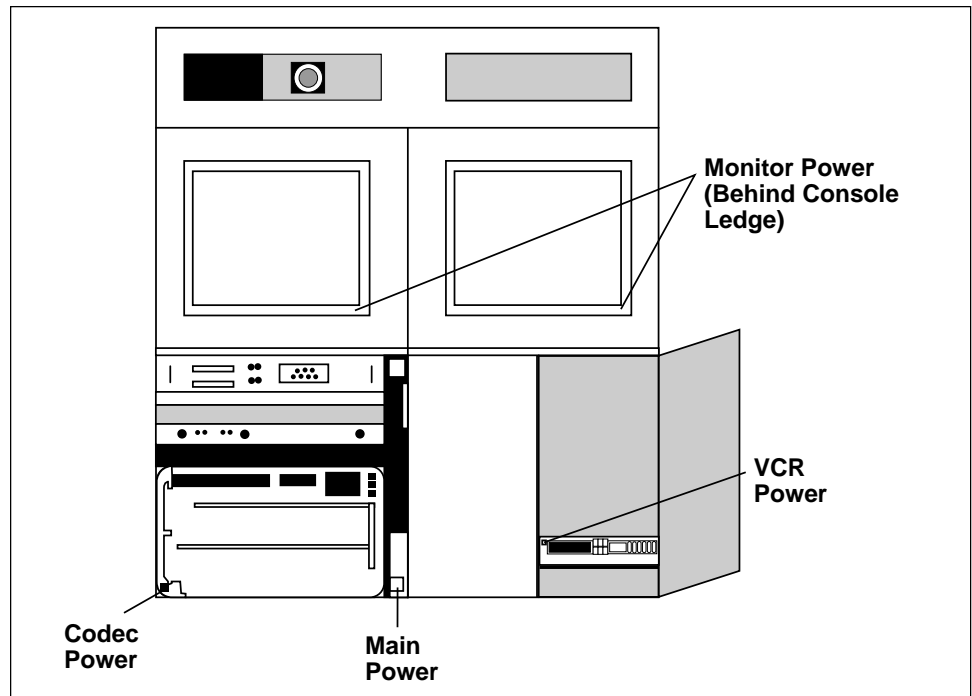


Figure 3-6: Easy-to-Reach Power Buttons and Cable Connections

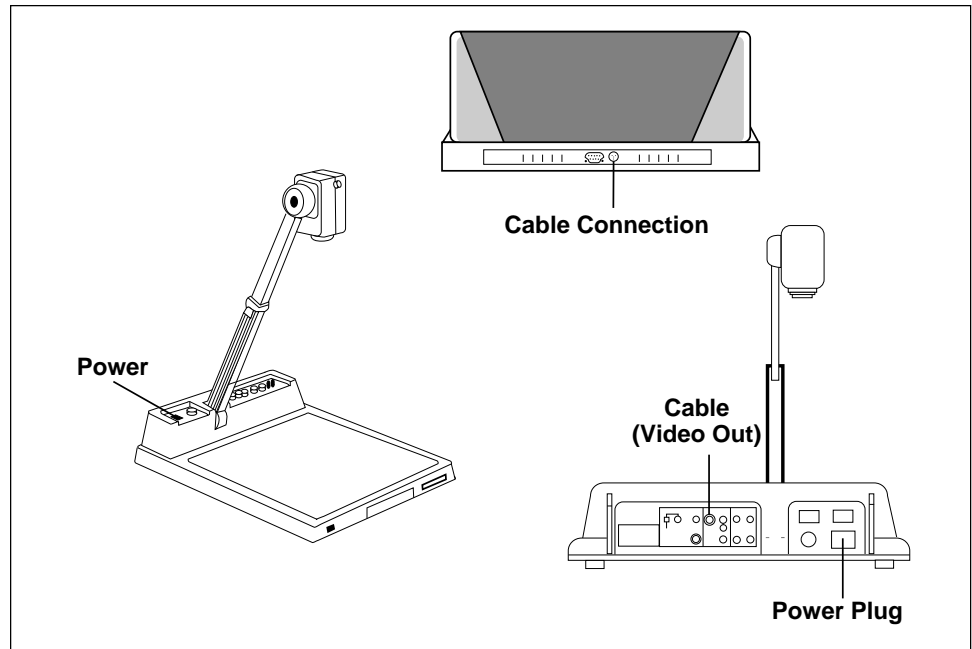
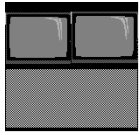


Figure 3-7: Easy-to-Reach Power Buttons and Cable Connections



## Chapter 4: Scheduling and Coordinating Video Teletraining Sessions and Videoconferences

The success of a video teletraining session or a videoconference depends largely on all those involved understanding their tasks well and feeling that they are part of a team.

The course manager is responsible for course delivery, including teletraining. The video teletraining design team supports the course manager in scheduling, coordinating, adapting, and delivering a teletraining class to ensure that the course is presented effectively for television. Decisions relating to scheduling and coordinating the class affect the course design and delivery.

To help course managers effectively schedule and coordinate a class, this chapter

- outlines the roles and the responsibilities of those involved in a typical teletraining session,
- identifies issues that need to be considered when scheduling a class,
- outlines the procedures for scheduling a class,
- lists the tasks that need to be completed before a class can begin, and
- presents scheduling and coordination checklists and forms.

Information in this chapter can be applied to both video teletraining classes and videoconferences *scheduled through TI*.

## Responsibilities for Video Teletraining

Several persons with various roles share responsibility in delivering a successful video teletraining class.

- The course manager is responsible for overall planning, delivery, and evaluation of the course.
- The video teletraining design team schedules the course and works with all staff to ensure that course design adheres to video teletraining design principles.
- The production assistant operates equipment and provides technical support to the instructor during the class.
- The remote site coordinator may handle administration and logistics at the participating site. A remote site coordinator's responsibilities vary depending on the class. Remote site coordinators may be regional training coordinators, designated facilitators, or TAG staff who provide technical support for the videoconference rooms.
- Technical support staff troubleshoot telecommunication and equipment problems. These staff are TI or OIMC staff at headquarters and TAG staff at most regional offices.
- The instructor delivers the class.
- Participants take part in the class.
- Guest speakers may be invited to participate during the class.

Each person has a specific contribution to make, and efforts must be coordinated.

## Questions to Answer Before Scheduling a Class

Before scheduling a class, the teletraining design team and course manager need to ask and answer a number of questions.

### Who Is the Remote Site Coordinator?

The course manager assigns or selects a remote site coordinator to tend to details before and during the class in the regional offices or other remote sites. The remote site coordinator's duties may include greeting students; explaining basic equipment operation; distributing materials, such as class rosters, at designated points in the class; explaining instructions; and facilitating discussion. Sometimes the remote site coordinator is a participant.

## Will Participants Be at the Instructor Site as Well as at the Remote Site?

This answer may be driven by cost considerations, instructor preference, course content, and the number of students wanting to attend a class at the instructor site.

### **You may want to include participants at the instructor site if**

- the instructor derives energy from the physical presence of participants and is more comfortable when establishing “live” eye contact,
- participants at the instructor site need to take the class and cannot wait for a separate offering, and/or
- serving more participants is cost-effective.

### **You may not want to include participants at the instructor site if**

- the instructor prefers to devote “eye contact” to the remote sites to “reduce the distance,”
- not having participants at the instructor site helps the instructor maintain a balance of interaction at all sites, and/or
- the instructor feels more comfortable arranging instructional materials and moving around the classroom without worrying about blocking the view of in-class or remote participants.

## How Many Sites Will Participate? How Many Participants Will There Be at Each Site?

The instructor’s comfort level, use of a remote site coordinator, course demand, classroom configuration, and the amount of individual participation expected will all influence the number of sites and participants. In general, try not to exceed 24 students total per class.

### **For multipoint classes, a few rules of thumb can help you determine the numbers of sites and participants:**

- If students are in the instructor room, have no more than four sites, with an average of three to six participants in each, unless the class is more information-based and requires minimal participation.
- Decrease the number of sites as the participant count per site increases. Examples of manageable classes are
  - 2 sites, 8-12 participants each;
  - 3 sites, 6-8 participants each;
  - 4 sites, 3-6 participants each; and
  - 5 sites, 3-6 participants at each of 4 sites, with no students at the instructor site.

Most new teletrainers start with point-to-point classes and increase the number of sites by one as they become comfortable managing multiple sites.

## How Many Days Will the Class Run?

If the class is held over several days, the sessions may be held on consecutive days (Wednesday, Thursday, Friday); on alternate days (Monday, Wednesday, Friday); or over consecutive weeks (every Monday for 14 weeks). Course design and room availability largely dictate how many days the class will run. (See ch. 5.)

## How Long Will Each Class Session Last?

Given time zones, flexible work schedules, and participant fatigue, 2-4 hours is best. Longer classes may be broken into smaller sessions on different days. (See ch. 5.) In addition, regional office use of the videoconferencing room must be considered. If the room is used for long blocks of time, others are prevented from using it. Although shorter sessions fit more easily with regional office needs, this may be a trade-off against instructional needs, which should be considered when designing the video teletraining course.

## At What Time Will the Class Start? End?

When determining start and end times, consider the time zones of the local and remote sites. A 9 a.m. start time in Washington, D.C., may be fine, but those in Seattle, Washington, may not be too happy with their 6 a.m. start time. Consider times for breaks and lunch as well. You may be planning a lunch break when others are ready for a morning coffee break.

## How Much Setup Time Will Be Needed?

Determine how much time you will need to

- arrange seating and materials;
- check camera settings and equipment placement;
- test audio and video with all sites;
- work out any problems before the official class start time; and
- conduct any other activities requiring rooms to be connected before the official class start (for example, play a countdown videotape to show number of minutes until class start, greet participants as they arrive).

**C**onfusion over start times in different time zones is a leading cause of no-shows and failed conference calls.

Experience with point-to-point classes indicates that reserving the room at least 30 minutes before class start and placing the network call at least 15 minutes before class start is about right.

Multipoint classes require a 30-minute minimum lead time for making connections and testing.

## **When Will the Instructor, the Production Assistant, and the Remote Site Coordinators Practice?**

Practice is essential before course delivery. Instructor experience with teletraining delivery may influence many of the decisions that will need to be made. Instructor practice sessions should include the production assistant assigned to the class. Will the instructor need or want an orientation to the room and the equipment? Will this be done at the same time as a practice session or scheduled separately? If applicable, will the remote site coordinator have a chance to practice with the instructor?

## **Who Will Be Available After Class and for Cleanup?**

Will the instructor be available to answer participant questions after the official class end time? How much time is needed to straighten the room before the next class or conference begins?

## **Procedures for Scheduling a Class**

Scheduling classes is a two-step process:

- First, the teletraining design team reserves classrooms and the videoconferencing network.
- Second, the class is scheduled in the training registration system (TRS).

**B**ecause of competition for time slots, schedule class dates and times as far ahead as possible (3 months to 1 year).

## Scheduling Classrooms and the Videoconferencing Network

Requests for classes, practice sessions, and conferences are filled on a first-come-first-served basis, subject to room availability at all sites.

To determine the best time for the class, the teletraining design team reviews course materials and, if possible, audits the class. The team also discusses ideal times and the duration of the class with the course manager and obtains the course manager's confirmation that instructors and support personnel are available for both desired dates and alternate dates.

The design team *cannot* reserve classrooms or dates on a tentative basis as the network is very busy. The following minimum lead times are recommended:

- 3-4 weeks for practice class sessions;
- 3 months for regular classes;
- 6 months or more for classes that are presented over several weeks (for example, every Monday for 14 weeks); and
- 1 week to 2 weeks for meetings, based on availability.

To reserve a classroom, the teletraining design team completes a "Video Teletraining & Teleconference Scheduling Information" form. (See sample on the next page.) The following information is needed to complete the form:

- the requester's name, organization, and phone number;
- names of course manager and instructor, if different;
- regional office contact names, organizations, and phone numbers;
- class title, desired dates, and class start and end times (supply alternative dates and times in case your first choice cannot be filled);
- number of participants at each site;
- equipment needs for each site (for example, graphics camera, computers);
- need for production assistant or technical assistance;
- dates of practice sessions (scheduled as a separate request); and
- other special needs, such as arrangements for participants with disabilities (each site having a participant with a hearing impairment must have its own interpreter).

# Video Teletraining & Teleconference Scheduling Information

## Requester Information

| Name                           | Organization/Address | Phone |
|--------------------------------|----------------------|-------|
| Requester                      |                      |       |
| Course Manager / Meeting Chair |                      |       |
| Course Instructor(s)           |                      |       |

## Regional Office Information

| Name | Organization/Address | Phone |
|------|----------------------|-------|
|      |                      |       |

## Activity Information

|  |                                   |                                     |
|--|-----------------------------------|-------------------------------------|
| Type Activity:   | <input type="checkbox"/> Training | <input type="checkbox"/> Conference |
| Course Title / Conference Subject                                    |                                   |                                     |
| Number of Participants:  | At Headquarters / Host Site       | At Regional Office / Remote Site    |
| Date(s) Requested ( <i>Indicate range or alternatives.</i> )         |                                   |                                     |
| Time(s) Requested ( <i>Indicate range or alternatives.</i> )         |                                   |                                     |
| Duration ( <i>Total Hours</i> )                                      |                                   |                                     |
| Comments / Special Needs or Requests ( <i>Continue on reverse.</i> ) |                                   |                                     |

## Technical Support

|   |                               |  |
|---|-------------------------------|--|
| • Computer Required                                   | <input type="checkbox"/> No   | <input type="checkbox"/> Yes   |
| • Technician Requested ( <i>Training only</i> )       | <input type="checkbox"/> None | <input type="checkbox"/> Standby Presence <input type="checkbox"/> Full Support During Class |
| • Practice Session Requested ( <i>Training only</i> ) | <input type="checkbox"/> No   | <input type="checkbox"/> Yes ( <i>Required for first time offering.</i> )                    |

## Schedule Assignment

| Date(s)             | Time(s) | Room | Conf. No. |
|---------------------|---------|------|-----------|
| Technician Assigned |         |      |           |



When scheduling videoconference meetings, the meeting leader is responsible for communicating scheduling information not only to presenters and remote coordinators but also to meeting participants. Identifying a lead person for each site can help reduce the time needed to do this.

Once the reservation has been made, a confirmation memorandum is sent to the course manager, listing the date(s), time(s), and special arrangements made. It is the course manager's job to communicate this information to those assigned to the class—instructors, remote site coordinators, the production assistant, and other staff who may be supporting the class. Participant notification is the same as for traditional classes and is managed through the TRS system.

## Scheduling the Class in the TRS System

Once the videoconference rooms have been reserved, the class (or classes) is scheduled in TRS. The number of sites (or rooms) with participants must equal the number of classes scheduled so participants can register separately by site. The following examples for a statistics (STAT) class illustrate how this is done.

**Participants at two sites:** A headquarters room and Boston have been reserved. Schedule two classes in TRS:

|      |           |                 |     |        |
|------|-----------|-----------------|-----|--------|
| STAT | Date/Time | Class number 01 | HQ  | Room # |
| STAT | Date/Time | Class number 02 | BRO | Room # |

**Participants at three sites:** Boston, Seattle, and a headquarters room have been reserved. Schedule three classes in TRS:

|      |           |                 |      |        |
|------|-----------|-----------------|------|--------|
| STAT | Date/Time | Class number 01 | HQ   | Room # |
| STAT | Date/Time | Class number 02 | BRO  | Room # |
| STAT | Date/Time | Class number 03 | SERO | Room # |

**Participants at three sites, two of which are at headquarters:** Boston and two headquarters rooms have been reserved. Schedule three classes in TRS:

|      |           |                 |     |        |
|------|-----------|-----------------|-----|--------|
| STAT | Date/Time | Class number 01 | HQ  | Room # |
| STAT | Date/Time | Class number 02 | BRO | Room # |
| STAT | Date/Time | Class number 03 | HQ  | Room # |

**Participants at two sites and no participants at the instructor (third) site:** Boston, Seattle, and a headquarters room have been reserved. The instructor will be located at headquarters. Schedule only the two classes where participants will be located in TRS; do not schedule the site with the instructor only:

|      |           |                 |      |        |
|------|-----------|-----------------|------|--------|
| STAT | Date/Time | Class number 01 | BRO  | Room # |
| STAT | Date/Time | Class number 02 | SERO | Room # |

## Changes and Cancellations

Last-minute cancellations cost GAO money directly—MCI assesses penalty charges—and indirectly through lost productivity for others who could have used the network.

If planning is done properly, cancellations and changes can be avoided. If a class must be cancelled, however, it is imperative that it be cancelled with the scheduler at least 48 hours before class. This is especially important for a multipoint class. Because GAO must reserve network time with MCI, GAO is charged a penalty per site for failure to cancel a class within the designated time frame.

One of the most common reasons for penalty charges is lack of coordination. For example, a course manager learns that the presenter for a four-site class must go out of town; consequently, the class must be postponed. The course manager notifies the participants and remote site coordinators but fails to inform the scheduler because he either forgot or assumes this is someone else's responsibility. The result: MCI is unaware of the cancellation, and GAO is charged.

If you must cancel a class; add or delete sites; or change the date, the time, or the length, please contact the scheduler promptly. If a change is made, all parties must be notified by the course manager.

## Room and Seating Arrangements

Room and seating arrangements are discussed and finalized by the teletraining design team, the course manager, remote site coordinator(s), and the instructor.

## Coordination of Video Teletraining Tasks

Technology is often blamed for unsatisfactory results when, in many cases, a lack of attention to planning, coordination, or procedures is responsible.

A number of tasks must be completed before a class can be delivered. The following task checklist identifies the kinds of details that need attention and monitoring, the responsibilities of team members, and the interdependencies—that is, the tasks and the persons that depend on one another.

The tasks are in sequential order, although some may be performed concurrently. Responsibility for ensuring task completion is indicated by a check mark in the columns labeled “TDT” (teletraining design team) or “CM” (course manager). In some cases, the design team and the course manager share responsibility.

| TDT | CM | Task  |
|-----|----|---|
| ✓   |    | Observe or audit live class, if possible. Review course materials.  |
|     | ✓  | Select instructor.  |
| ✓   |    | Confirm instructor selection for course delivery by video teletraining.   |
| ✓   | ✓  | Meet with team to assign responsibilities and develop time line.  |
| ✓   | ✓  | Determine dates, sites, times, and number of participants.  |
| ✓   |    | Reserve videoconference rooms for class.  |
|     | ✓  | Schedule class in TRS.  |
|     | ✓  | Notify regional coordinators of upcoming class; send confirmation notice.   |
| ✓   | ✓  | Modify instructional methods as appropriate. (See ch. 5.)   |
| ✓   | ✓  | Review visuals and modify as needed. (See ch. 6.)   |
|     | ✓  | Identify any special needs (e.g., materials, seating, additional breakout rooms, remote site coordinator).  |
| ✓   |    | Discuss various contingency plans (e.g., plans for instructor illness and temporary equipment malfunction) and special needs or instructions.   |
| ✓   |    | Schedule practice meeting in videoconference room with instructor, production assistant, and remote site coordinator.   |
| ✓   |    | Reserve the videoconference room for a practice session.  |
| ✓   | ✓  | Preview modified visuals and other audiovisual materials in videoconference room.   |
| ✓   | ✓  | Identify remote site coordinator(s), and work with the remote site coordinator(s) to <ul style="list-style-type: none"> <li>• obtain seating diagrams;</li> <li>• ensure that the room is stocked with needed supplies and course materials; and</li> <li>• obtain phone numbers for remote site coordinators, technical support, and their backups.</li> </ul> |
|     | ✓  | Send a copy of any agreements reached with the remote site coordinator(s) to the remote site coordinator(s) and the instructor.   |
| ✓   | ✓  | Conduct practice in videoconference room.   |
|     | ✓  | Arrange for copying and shipping of course materials 2 weeks before class.  |

| TDT | CM | Task   |
|-----|----|--|
|     | ✓  | Confirm arrival of materials at remote sites.  |
| ✓   |    | Obtain list of conference room telephone numbers.  |
|     | ✓  | Review remote site coordinator responsibilities with remote site coordinator(s).   |
|     | ✓  | Make reminder calls to remote site coordinator(s) and production assistant 2 days before class to verify that all preparations have been made and that materials have been received.   |
| ✓   |    | Arrive early to set up class and participate in audio and video testing: talk with remote site coordinator(s); check all cameras to be used; check to see that graphics can be received by exchanging graphics with remote sites; check camera presets, if used. Allow 10 minutes for testing in point-to-point setups and 25 minutes for multipoint setups. |
| ✓   |    | Make sure that the instructor has phone numbers of remote rooms.   |
| ✓   |    | Assist instructor with roll call and identifying students on remote site seating chart, if used.   |

## Planning and Conducting a Multipoint Meeting

Many of the scheduling and coordinating components that make a teletraining session successful also apply to making a videoconference meeting successful. One significant difference is that the meeting leader is responsible for planning, organizing, and conducting the session.

The meeting leader should carry out, in addition to the tasks carried out before any meeting, the following tasks.

**R**eserve early! Schedule all rooms according to OIMC procedures. Note the confirmation number, which serves as a reservation number. It will help OIMC if changes or problems occur.

- Determine the amount of meeting time needed.
- Identify how many locations will participate.
- Choose desired and alternative days and times in case a room is unavailable. Multipoint meetings require a 30-minute setup time. If the meeting is to start at 9 a.m., reserve the room for 8:30 a.m.
- Use Eastern Standard Time when discussing time. OIMC's scheduling software uses Eastern Standard Time.
- Identify a lead contact at each location to facilitate communication with participants and distribute materials. Determine who will operate the control panel at each remote site.
- Notify lead contacts and participants at all sites of the confirmed meeting time.

If cancellations or time changes become necessary, OIMC must be notified *at least 2 days* (48 hours) in advance of the scheduled conference to avoid penalty charges to GAO.

- Take advantage of the medium by preparing graphics and handouts. Participants at remote sites report greater meeting success when they have copies of graphics used. Word pictures can also be used for meetings. (See ch. 6.) Ensure that paper copies of visuals, such as graphs, charts, traditional text, or pictorial “overheads,” are in TV format (4 in. by 3 in.).
- Schedule a short session in the videoconference room to run through the visual aids to make sure that they are easy to see and to practice using the equipment. (See ch. 2.) Remember, TI and OIMC do not provide technical support for meetings.
- Make sure that the lead contacts know whom to go to for local problems. Plan for any special needs, such as room arrangement, equipment placement, and camera positioning.
- Determine how problems will be handled if any occur (e.g., audio or network problems), and inform contacts or participants of status.
- Ask contacts to be in the rooms at least 20 minutes before the start of the meeting to set up and to participate in testing. This also allows for a relaxed start.

# **Chapter 5: Designing and Redesigning Courses for the Video Teletraining Format**

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Video teletraining presents new challenges for course developers and trainers. The instructional materials and the presentation must consider visual, auditory, and distant classroom strategies that augment the course goals. At the same time, the course must observe the precepts of good course design.

## Video Course Design

Sound principles of instructional design are more critical to the success of distance training than technological issues.  
— Latchem and Rapley, 1992

Designing and redesigning courses for video teletraining assumes course design experience and well-written course goals and objectives. It is the *strategies* for reaching the course goals and objectives—*not* the goals and objectives themselves—that often must be revised to fit the video teletraining format. Understanding the video teletraining format enables course developers to incorporate the appropriate strategies into the course design or redesign and to communicate these strategies to managers and instructors.

During the design stage, course developers need to consider unfamiliar design concepts, such as how visual and auditory components affect the structure of the course. For example, course developers will need to consider who sees what on the monitor:

- As the instructor presents or uses different media, what do the participants see on the monitors?
- Can the instructor see what participants are doing at critical points in an activity?
- What must participants see? Are the materials prepared in a format acceptable for a television screen?
- How will the design compensate for the limitations this format imposes on nonverbal feedback?

The same fundamental principles apply to all teaching and learning. There may be variation in the way that the rules are applied, but there are no inherently unique principles in distance education.  
— Sewart, 1987

Sound also becomes an important component of the design process. As a course developer considers who must be heard and when, sound comes into play. Course developers need to think about how discussion in each classroom and between classrooms will be managed. In multipoint conferences, voice-activated switching (see glossary) affects which picture is sent to all sites. Not considering this feature could result in a remote site's being displayed at a time when it is critical for the instructor site to be displayed.

When designing or redesigning a course for the video teletraining format, everything from the initial scheduling—determining the course length, the spacing of days, and the length of each class session—to materials management—preparation, distribution to sites, and distribution during class—needs to be considered. For example, an 8-hour workshop would not be effective for the video teletraining format and would need to be broken into smaller time units. The workshop could be two 4-hour sessions, four 2-hour sessions, or three 2-hour sessions

with some work assigned for completion outside class. Whichever session length the course developer chooses will greatly affect decisions on designing or adapting the course material. A Training Institute design team is available to help apply design principles appropriate to teletraining. This team will also help course developers become familiar with the equipment used for instructional delivery.

## Some Differences Between the Traditional Classroom and the Video Teletraining Classroom

| <b>Traditional (Resident) Classroom</b>   | <b>Video Teletraining (Interactive Video) Classroom</b>   |
|---|---|
| <p>Instruction or learning takes place in one room, where all participants and instructor are together.</p> <p>Instructors and participants can see one other at all times. They can "multiprocess" what goes on in a single room—they can speak and observe the reactions of all participants. Nonverbal feedback is possible.</p> | <p>Instruction takes place in one or several electronic classrooms. Participants are in remote rooms; they may or may not be in the instructor's room.</p> <p>Instructors and participants cannot always see one another. They may see one another sequentially but not necessarily simultaneously. Feedback is usually verbal and must be solicited by the instructor.</p> |
| <p>The course developer and the course manager primarily are responsible for course development.</p>  | <p>The design effort involves more expertise—especially that of the video teletraining design team, which ensures that production components are incorporated in the course design. The design effort requires thinking about who, in addition to the instructor and participants, will be involved in course delivery.</p>   |
| <p>Transparencies and flip charts primarily are used to communicate and display information.</p>  | <p>Cameras and monitors are used to communicate and display information. Visual aids are used more frequently to reinforce the instruction.</p>   |
| <p>The dynamics and the energy of the in-person classroom encourage participation and interest.</p>   | <p>Participants view a monitor and can easily become passive observers. The design must consider this and incorporate strategies for maintaining participant interest.</p>  |
| <p>Training segments are usually 7-8 hours to maximize participants' time (since participants sometimes travel to a class).</p>   | <p>Time frames for class delivery are flexible, and travel time generally is not a consideration since usually it is not needed.</p>  |



# The Design and Redesign Process for Video Teletraining

Designing or redesigning a course for video teletraining involves

**P**rovided consideration is given to all the instructional variables, any course can be designed or redesigned for distance delivery. "Distance is simply one variable."  
— Wagner, 1992, p.44

- collecting information about the material to be presented;
- designing or redesigning instructional strategies and activities for the video teletraining format;
- assessing and enhancing class interaction;
- developing appropriate course materials that are easy to follow visually and that give specific delivery and classroom management instructions;
- practicing in the videoconference room, making necessary revisions to course design, scheduling, or both; and
- planning time and scheduling as it relates to the course and participants.

## Collecting Information

Techniques for collecting information depend on whether the course is being newly designed or adapted. With new courses, course developers should look closely at content and structure while incorporating the design principles of video teletraining during the initial design phase.

**T**he challenges of teaching at a distance versus teaching in a traditional classroom make you work harder, make you organize in more detail, and make you think about doing things which you have always done one way differently.  
— Jeff Klivans, Maine University

If adapting an existing course, course developers need to find ways to learn about the material. Auditing the course and making notes in the instructor's guide is an excellent way to do this. If auditing the course is not feasible, then reading the materials and interviewing the content expert, the course developer, and the instructor can provide essential background. Findings can then be presented to the design team and considered as the course is redesigned.

## Designing or Redesigning Instructional Activities

If designing a new course, course developers can build video teletraining aspects into the instructional activities. This will save much time in revisions later, and courses can still be used in a traditional classroom. If redesigning a course, course developers will need to adapt the instructional activities to fit the medium. If an existing activity does not lend itself to video teletraining, course developers will need to look at how to present the activity differently or redefine the activity being used. In either case, course developers need to focus on how to

**D**istance courses must include strong interaction in order to be effective.  
— Klinger and Connet, 1992

enhance the content and increase active learning using the visual opportunities available through video. Time and scheduling also need to be considered when assessing instructional activities, as the flexibility of video teletraining offers opportunities that were previously impractical or unavailable.

Nearly all learning activities used in a resident classroom can be used in a video teletraining classroom. However, highly interactive activities lend themselves better to video teletraining than lectures because they help to keep participants' attention focused and provide a means for uniting multiple sites. While keeping attention focused and developing a sense of unity are essential for any classroom, they are especially important in a video classroom because they help to remove participants' feelings of being outsiders—always a threat to “distant” classes.

As course developers gain experience in designing or redesigning instructional activities for video teletraining, they will find that identifying potential problems, options, and solutions will become second nature.

## Designing Activities: Problems and Options

**A**lmost any methodology can be accomplished at a distance with the proper planning.  
— Farr and Shaeffer, 1993

To help course developers and instructors think differently—that is, to answer the question “What will work?”—this section provides examples of five activities as they would be presented in a resident classroom and potential problems and potential options for modifying each activity for video teletraining.

Some options are more desirable than others, given cost of materials and logistics. However, all options allow for each participant to have the same opportunity to participate in an activity, regardless of the location. *No one site should have an advantage over another.* Each site must be able to critique, evaluate, comment, and share responses. Unless an observer role is part of an activity, such as a role play or a group process exercise that has a designated observer, it is unacceptable for a remote site to be placed in the role of observer only.

**Dart Game:** To demonstrate differences in coaching and feedback, participants in a resident classroom are asked to participate in a dart game. The game is facilitated by the instructor, and participants are called upon to coach and give feedback to the dart thrower. The problem for the video classroom is how participants at remote sites can actively observe, coach, or provide feedback on the dart game when they are not in the same room. Capturing the person throwing the dart and the target on camera, given the target's distance from the person, can also pose a problem.

Option 1: Focus the main camera on the person throwing the dart and the graphics camera on the target. After the dart hits the target, the image of the target (which does not need to be real time) can be sent in still mode to all sites. Thus, participants at any site can provide feedback on the dart's proximity to the target.

Option 2: Provide a dart game for each site, and ask each site to conduct the activity, facilitating the activity from the instructor site. Logistically, this is more difficult than other options, but it can be done.

Option 3: Select another game that requires less distance, such as shooting marbles, so that the game can fit in the view of a single camera. Or select a different skill, such as drawing a picture. The drawing can be viewed in live mode under the graphics camera. The activity may change, but the learning objective remains the same.

**Brainstorming:** To come up with possible solutions to a problem, participants in the resident classroom are asked to brainstorm solutions individually and then in small groups. Solutions are to be written on flip chart paper, posted, and discussed with the entire class. The problem for video teletraining is that flip chart paper cannot be seen easily by remote sites, especially when posted. To think of options for redesign, consider the reasons flip chart paper is used in a resident classroom: to write large enough for all participants to see and to post for reference later.

Option 1: Provide pads of blue paper (see ch. 6) to the groups to write on. "Send" the groups' brainstormed lists of solutions to other sites using the graphics camera. Since the lists are enlarged on the receiving monitor, the monitor acts as a flip chart; the lists also can be re-sent any time during class for further reference. The 8½- x 11-inch size also allows for copying and distribution to participants, eliminating the need for someone to retype the handwritten flip charts.

Option 2: For a point-to-point class, responses can be entered into the room's computer and shared with the other room via the document conferencing system. All participants can receive a printed copy.

**Icebreaker: Koosh Ball:** To break the ice, participants in the resident classroom are grouped in teams and asked to toss a koosh ball around to members of their team, calling out the name of the person who is to catch the ball, until all team members have caught the ball. The activity is repeated, with each

team trying to beat the fastest time. The problem for the video classroom is knowing when to stop the timer, since the instructor may not be able to see all teams. In a multipoint class, the noise generated from multiple sites could also cause rapid voice-activated switching.

Option 1: Select a participant or the remote site coordinator to be the “timekeeper” at each remote site. The timekeeper times the fastest team. Results are compared among sites, and all try to beat the lowest time. In a multipoint class, mute the microphones while the activity is conducted and reactivate to compare times.

Option 2: Ask that the person who receives the ball last on each team to call out that the team is finished (for example, “Team 2 is finished” or “Atlanta is finished”), and stop the time on the basis of the vocal signal. In a multipoint class, the first team to reactivate the muted microphones calls time.

Option 3: Design a different activity that allows teams to work together.

**Observing Presentation Skills:** To observe and provide feedback on a participant’s presentation skills, the presentation is videotaped and the instructor reviews the videotape with the participant in the resident classroom. Problems for the video classroom are being able to hear clearly—to check speech and diction—and observe facial expressions, gestures, and other nonverbal cues.

Option 1: Provide instruction and a demonstration during the class session. (The instructor and the design team determine the best camera angles and presenter placement so that all the presentation’s elements can be observed.) Videotape each participant’s presentation either on the network or at the participant site using nonvideoconference taping equipment (not compressed picture). Meet later with the participant (by videoconference) to review the tape. The tape can be played on the videoconference system, or a copy can be sent to the instructor site if excessive motion is involved or if the effects of video compression are unacceptable.

Option 2: Provide instruction and a demonstration during the class session. Videotape each participant outside the class (not using class time, unless the class needs to see each presentation as part of the learning experience). Review the tape with the participant in a videoconference. The tape can be transmitted, or separate copies can be viewed.

Option 3: Have a trained facilitator (possibly a former course participant or a known expert presenter) at each remote site to observe and critique. Each site conducts its presentations concurrently, critiqued by facilitator at the site. Meet again with participants and facilitators to compare results and debrief.

**Brainteasers**: To help participants think creatively, 10 brainteasers are posted on a wall and participants try to solve each one. The problem is obvious—participants at remote sites must be able to see the brainteasers.

Option 1: Print the brainteasers in the participant guides that are mailed to remote sites, and allow a set time for completion.

Option 2: Prepare a graphic with each brainteaser written on it, and use the graphics camera to send the brainteasers to the remote sites, displaying them one at a time.

Option 3: Send copies of the brainteasers to each site, and ask the remote site coordinator to post them on the wall.

## Managing Small-Group Activities

Small-group discussions or other small-group activities followed by a report to the class as a whole are common to many training programs. This type of activity is easily adapted to video teletraining because there are no difficult visual aspects to capture. The significant difference is in the reporting method, which must be managed. Participants write responses on blue paper used for the graphics camera instead of on flip charts, and the verbal report-out must be orchestrated as to which site will speak when. Remember that participants must be able to see and hear during the reporting process.

## Considering How (or Whether) to Adapt an Activity: Questions to Ask

There are a number of questions that will help course developers pinpoint where problems might arise in using an activity in the video teletraining format. The questions—and answers—will also help in writing the instructor guide. The questions relate to

- what is seen and what is heard,
- interactivity,
- logistics and materials,
- equipment, and
- time.

Sometimes an activity may not be suitable for the format, and a different activity will need to be devised.

The following fast-paced three-part activity—one that involves origami frogs—from “Performance Management,” a TI course, illustrates how these questions and their answers can influence design. The text below describes how the activity takes place in the resident classroom. Contrast this text with the instructions in the section entitled “Instructor Guides,” which follows later in this chapter.

The purpose of the activity is to demonstrate the close involvement that coaching requires and the positive attitude that coaching generates.

In the first part, participants are asked to use the origami paper at their tables to create a frog like the one displayed at the center of their table. They may not, however, move or touch the sample. They are to work independently and not ask for or receive assistance from facilitators or other participants. They are given only 1 minute for this part of the exercise. At the end of 1 minute, the participants stop folding and are not to touch their papers again until told to do so. Unless a participant already knows how to make origami frogs, the origami papers at this point are normally a series of folds.

For the second part, volunteers (preferably one from each table) are asked to be coaches. (If a participant is successful in creating the frog, he or she can be selected as a coach.) The coaches are taken outside the classroom, each is given a “Coach” hat, and they are provided a demonstration and written and oral instructions on how to make the frog. They are also coached on how to coach. They may assist their peers and give hints, even show by example; they may help them in any way short of doing the folding for them. While the coaches are outside the class, the participants are asked to jot down notes in response to the question, “What kind of coaching would help you most right now?” Once the coaches have been provided with the demonstration and instructions, they return to the classroom to help participants complete the task.

The third part is a debrief of the activity. Participants are asked to independently list as many reasons as possible for why people do not perform job-related tasks effectively. In a “round robin” process, each participant gives one reason, which is written on flip chart paper, until all reasons have been given.

Each part of this activity is affected by the video teletraining format—and in very different ways. For example, two instruc-

tions in this activity need changing. First, since the instructor cannot place one frog on remote site tables, the designer must consider other options. (See below). Second, the instructor cannot take remote site coaches into the hall to demonstrate how to make the frog because all coaches must see the instructor demonstrate how to make the frogs. Thus participants must be sent out instead.

The following table lists the questions to be asked to help identify potential issues for video teletraining and the answers to the questions for each part of the exercise.

| Part I   | Part II   | Part III   |
|--|---|--|
| <b>Do participants need to see the instructor?</b>   |   |  |
| No. Participants are looking at the frog. However, how remote participants will see the frog needs to be determined. There are several options: Send the sample frogs to each location, or use the graphics camera (which ensures participants won't touch the frog) to show the frog in still mode or in live mode, which allows you to move the frog and show different views, adding dimension. | Yes. It is essential for coaches to see how to make the frog.   | Not while participants are developing their lists, but they do need to see during the report out.  |
| <b>Does the instructor need to see all participants, or do participants need to see other participants?</b>  |   |  |
| No. It's nice but not critical. Observing participants in instructor room and through the on-screen remote site will provide information.  | Only during the report out.   |  |
| <b>Does the instructor need to see the product of the activity or hear the discussion?</b>   |   |  |
| Yes. The instructor needs to observe participants' reactions and see how far participants get in completing the task. The frog can be displayed by the main or the graphics camera.  | Yes. The instructor needs to know that coaches are following along and don't get lost when making the frog. | Yes, if brainstormed lists are shared visually. The instructor must see the paper under the graphics camera and see participants as they list reasons. |
| <b>Do groups need to see other groups?</b>   |   |  |
| No. At this point, the activity is independent.  | No.   | Yes, during the report out.  |
| <b>Does the entire activity need instructor guidance?</b>  |   |  |
| No. Only one instruction is given.   | Yes. Continuous.  | Only during the report out.  |

| Part I  | Part II  | Part III  |
|---|--|---|
| <b>Is a method for signaling completion required?</b>   |  |   |
| Yes. The instructor calls time after 1 minute. Participants stop regardless of completion.  | Yes. The instructor must ask each coach in turn. At the conclusion, each site must confirm completion.   | Yes. The instructor will need to call time or ask sites if they have completed lists. |
| <b>May participants talk during the activity?</b>   |  |   |
| No. Participants may not talk at this point. Note that in point-to-point conferences, talking is not a problem. In a multipoint conference, if participants talk, the picture will change and the frog seen by all at first will no longer be seen. | Yes. Questions may be asked. In a multipoint conference, the instructor must be sure that the instructor site returns to the screen.                           | Yes.  |
| <b>Should microphones be muted?</b>   |  |   |
| Not at this time.   | Muting the microphone is not necessary for point-to-point conferences. Optional for multipoint.  | Microphones may need to be muted if there are more than two sites.                    |
| <b>Are participants actively involved in learning?</b>  |  |   |
| Yes, very involved.   | Yes.   | Yes.  |
| <b>With whom or what do the participants interact, and how is the interaction structured?</b>   |  |   |
| With the frog.  | Coaches interact with the instructor by video; participants interact with one another outside the videoclassroom.  | With participants at all sites and with the instructor.                               |
| <b>What type of report out is needed?</b>   |  |   |
| NA  | NA   | Verbal, round robin (paper optional).   |
| <b>What is the size and the grouping?</b>   |  |   |
| Participants work individually.   | Minimum of two. Better with groups of three or more. The number of groups per site must be predetermined so that the correct number of coach packages is sent. | Participants work individually, then as a group for the report out.                   |
| <b>Is the activity conducted in the classroom?</b>  |  |   |
| Yes.  | Not totally. Coaches remain in class. Other participants move out of listening range.  | Yes.  |



| Part I  | Part II   | Part III   |
|---|---|--|
| <b>Is other space needed?</b>   |   |  |
| No.   | Yes. Participants need another location for discussion. This part needs coordination at remote sites. | No.  |
| <b>Will varying the room or table sizes have an effect?</b>                               |   |  |
| No.   | No.   | No.  |
| <b>Are special materials needed?</b>  |   |  |
| Premade frog and origami paper at instructor site and origami paper at participant sites. | Coach hats and frog instructions for coaches and another package of origami paper for participants.   | None. (Blue pads are needed if items are shared visually.)   |
| <b>Is any videoconference equipment other than the main and auxiliary cameras needed?</b> |   |  |
| Graphics camera at instructor site to display origami frog.                               | Graphics camera at instructor site for demonstration.   | Graphics camera at participant sites for the report out if needed.   |
| <b>Is any nonvideoconference equipment needed?</b>  |   |  |
| No.   | No.   | No.  |
| <b>Must the activity be completed on air?</b>   |   |  |
| Yes.  | Yes.  | No. If time is a consideration, the activity can be completed off air and discussed later or during the next class session with other sites. |

## The Impact of Time and Scheduling on Design

In addition to thinking differently about activities, course developers need to think differently about time. The use of time takes on new importance when making the transition to a video classroom. In this environment, timing is more than how the instruction is paced. Timing and scheduling affect all aspects of a course and provide opportunities, as well as impose constraints. In addition, time is money on the video network. Activities normally done in class may be completed outside of class time, yielding two important benefits: dollar savings in network time and an opportunity to start the next class session interactively by reviewing an off-line assignment. All these points need to be

considered at the design stage in structuring the content. The fact that video teletraining courses tend to be most successful when designed for 2- to 4-hour time blocks poses new design considerations. New opportunities include

- bringing in guest speakers or team teaching from different locations;
- maximizing use of precourse and preclass assignments;
- using off-line activities between sessions for practice, reinforcement, or enrichment (observations, skills application, and feedback);
- scheduling a short session of 1 hour, followed by a 3-hour session on another day;
- using the LAN for team or group assignments; and
- linking the timing of class to regular or special events.

Time zones of sites may also impose some constraints when planning activities and breaks. For example, a break at 2:30 p.m. for the east coast might be the beginning of lunch for the west. This may indicate a need to combine activities with breaks or lunch, so that all participants are dismissed at the same time and all return at the same time, having had lunch and completed the activity. Sometimes time zone problems can be worked around by scheduling the class differently, such as teaching only one time zone at a time or scheduling in shorter time frames.

Sometimes a course needs to be scheduled on the network before design or redesign is complete. In these cases, the blocks and lengths of time available will affect the length of activities and placement of breaks and transitions.

## Assessing and Enhancing Class Interaction

**H**igh levels of interaction  
reap high levels of  
achievement.  
— Kabat and Friedel, 1990

Once the instructional activities have been selected, the overall course design needs to be assessed for interaction. Depending on the activities used, additional interactions may be needed. Ideally, however, interaction should be built into the design of the video teletraining class. Used effectively, interactivity affects motivation, attention, and retention. Understanding the types of interaction and ways interaction is achieved will help add variety as well as more ways for participants to be actively involved in learning. To structure interaction, the course developer must be aware of what is being seen and heard at all sites.

Interaction does not mean that all participants must interact with the instructor. Interaction can take place

- between instructor and participants,
- between participants at the same location,
- between participants at two or more locations, and
- between participants and media.

For example, participants at one location could list the pros and the cons of an issue as a large group or could work in small groups to generate the list; participants at one location could debate one side of an issue while participants at a second location debate the other; participants at three locations could be given the same task and all share the results; participants could listen to an audiotape or watch a videotape and then react and take a paper and pencil quiz; or participants could read an article and answer questions.

Activities designed to enhance interaction can include assignments requiring decisionmaking, value judgments, analyses, and other means of making the participant work with content material, such as brainstorming, case studies, team tasks, role plays, and data gathering. Course design can also include interviews, panels, and field trips—although these may fall into the category of holding interest rather than interaction. Even the time-honored lecture can be made more interactive.

The course developer and the instructor can also use good questioning strategies to increase learner involvement. Some instructors intuitively use questioning strategies to involve participants and get feedback on comprehension; many do not. Therefore, the course developer must build interaction into the presentation through substantive questioning strategies. This means more than just recalling and reciting facts. It means using questions that encourage analysis, synthesis, and judgment. Questions should not, however, be written into the design simply to promote superficial interaction; the questions should provoke thinking and learning.

## Developing Course Materials

Developing course materials demands attention to how materials look and to how what is on the monitor relates to what is in the manuals. In addition to content, course materials should include specific plans for managing communication between sites, for using visuals and videotapes, for demonstrations, and for the timing and the logistics affecting the course.

**M**ethods and materials are determined by their effectiveness in supporting accomplishment of objectives.  
— Farr and Shaeffer, 1993

Course materials, then, must be designed not only to promote communication between sites but to help the instructor and participants stay on track.

## Instructor Guides

The instructor guide still contains instructions as to how the content is to be presented. In addition, it includes details relating to interaction and coordination. Since more people are involved in a video teletraining course, coordination is more complex. Each person must know exactly what to do. For example, the production assistants, and possibly the remote site coordinators, need instruction and guidance on how and when to support the instructor. If instructors must move to a different part of the room—to stand at a podium or use the graphics camera—they must know exactly when to do this. If microphones need to be muted, the instructor needs to know when to give this direction.

Consider the details that would need to be written into the origami frog activity to make it suitable for videoteletraining delivery.

- **Preparation:** Send the following items to the remote sites: coach hats (one per group at each location); instructions for making the origami frog; and origami paper, enough for two rounds. Depending on hallway space outside videoconference rooms, consider reserving a breakout room for the discussion in part II.
- **Part I:** Ask a participant (or a remote site coordinator) to distribute origami paper to others. Place one folded origami frog on the graphics camera stand, and send it still. (Optional: Transmit the frog in live mode if another view is desired.) Instruct participants to fold their papers to make the frog displayed on the monitor. They are to work independently and not ask for or receive assistance from facilitators or other participants. Allow only 1 minute for this part of the exercise. At the end of 1 minute, have participants stop folding. They are not to touch their papers again until told to do so. Check with all sites to determine whether anyone was able to complete the task.
- **Part II:** Most likely no one will have made the frog. If a participant did, select him or her as a coach. Ask for volunteers to be coaches (preferably one from each table). Ask coaches to stand by while you assign participants their task. Have participants move to hallway or breakout room and jot down

To help keep participants on track, the instructor guide must also contain specific page or visual references to participant materials.

notes in response to the following question, “What kind of coaching would help you most right now?” While participants are out of the room, have the coaches find the hats and written instructions that have been sent ahead. Using the graphics camera in live mode, demonstrate and explain to the coaches how to fold the frog, referring to each written step as it is completed. Verify after every couple of steps that the coaches are with you. (If you are on a multipoint call and a discussion is going on, make sure to speak while you demonstrate to bring the camera back to your site.) Tell the coaches that they may assist their peers and give hints, even show by example, but may not do the folding for them. Coaches may use sample frogs. Ask them to inform you when everyone at their tables has folded all the papers into frogs.

## Support Materials

Because proper development of visuals is so important, chapter 6 is devoted to the design of visuals. Visuals must be numbered so that the instructor and participants do not get lost, and they must be readable on the screen.

Most likely, there will be more visuals for the video class than for the resident class because visuals provide more ways to communicate content; long, wordy visuals can be split into two to make the material more readable; and visuals can be used to refer participants to a handout or to summarize key steps of an activity participants are about to perform.

Keep in mind that all rooms must have the same materials (unless an activity requires rooms to have different materials for the same activity). These must be prepared and shipped ahead of time, requiring planning. If a videotape is used, preview it first on the videoconference system to make sure the quality is satisfactory. Plan ahead for someone to distribute the materials at the appropriate time. Keep the logistics as simple as possible. The more materials and instructions that have to be shipped to each site, the higher the risk that something will be missing or insufficient in quantity, resulting in a less effective class and dissatisfied participants.

## Practicing in the Videoconference Room

Practicing the course on the system is essential for many reasons:

- to check for sequence, flow, continuity, and transitions, especially if the course will involve more than one class session;
- to check that instructions for all involved are clear;
- to ensure that visuals are readable;
- to ensure that there is adequate variety;
- to get a feel for how the interaction between sites will be managed;
- to ensure that transitions requiring different pieces of equipment can be handled smoothly; and
- to get an accurate check on time, especially if the class has already been scheduled on the network and you must fit into the existing schedule.

Until materials are developed, it is not possible to know how long each topic or activity will take. Since classes start and stop by the clock, it is important that timing be as precise as possible. Timing the class on the system must take into account the logistics of communicating with remote sites into account. Double-check to see that the visuals match the manuals and that the activities can be completed in the time allotted. Look for gaps and redundancies, review for pace, and check logistics.

As a result of trying your course on the network, you may find that you need to resequence an activity or, given the common 2- to 4-hour frame for one session, you may decide to stop in a different spot or develop more transitions.

You may also find it easier to try your design out one lesson at a time on the system, to gain experience that will help you in future lessons.

## Planning Time and Scheduling the Course

Once the length of lessons, of activities, and of the overall course have been determined, the course can be scheduled on the network.

If the content is procedural, if mastery of sequential content is an essential part of the learning, or if immediate reinforcement is needed, scheduling on consecutive days (Monday, Tuesday,

Wednesday) can be an advantage. However, where skills acquisition is tied to monthly or quarterly events in the workplace, spaced events may be more desirable.

Identify modules that depend on skills taught earlier as opposed to those that stand alone. Can the modules be resequenced so that a longer module and a shorter stand-alone module can be combined in a 3-hour session?



## Chapter 6: Adapting Visual Materials for Television

Video teletraining requires that visuals be designed in a format that will enhance the instructional message sent via video. In this delivery mode, much of the participants' attention is focused on the monitor and the information the visuals provide. In addition, the television can magnify the effect of poor visuals. Therefore, the course designer needs to pay special attention to designing the visuals for a teletraining course.

This chapter explains what media can be used and presents the guidelines for television format. Following these guidelines will ensure that your visual message is clear and easy to read or view.



## Media

Videotapes, paper copies of transparencies, 35mm slides, and computer presentations can all be used in your presentation. Slight modifications may be needed to use the special equipment in the video teletraining room. (See ch. 2.) Color photographs can be placed under the graphics camera. Request a flat finish, since the glossy finish causes a glare. When taking photographs, be sure to leave space around the subject. The photograph can then be cropped to fit TV format. Transparencies (or view graphs, or “foils”) are not used; instead, a paper copy of the transparency, commonly referred to as a graphic, is used.

## The Television Format

A television screen has a 4 by 3 format; that is, it is 4 units wide by 3 units high. Therefore, visuals should be prepared in a 4:3 ratio, such as 6 by 4.5, 8 by 6, or 10 by 7.5. The graphics camera zoom lens can then enlarge the size without losing the correct perspective or “aspect ratio.” (See fig. 6-1.)

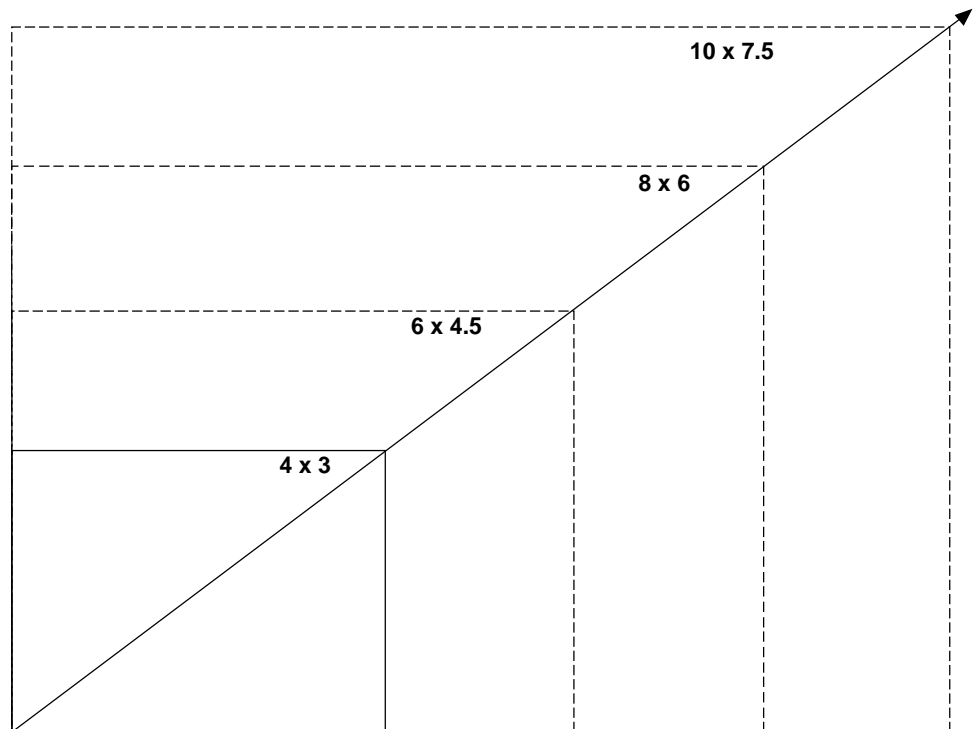


Figure 6-1: 4:3 Proportions

Graphics or artwork prepared in a vertical, a portrait, or an 8½-by 11-inch format will not be seen in their entirety, unless they are reduced, making the material harder to read or see. (See fig. 6-2.)

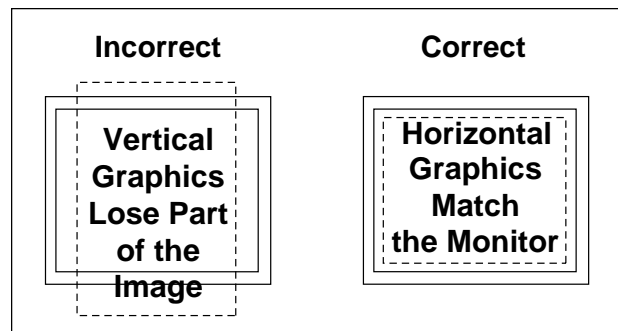


Figure 6-2: Visuals Prepared in Incorrect and Correct Ratios

## Design Tips for Visuals

- Request that all artwork be done in the same 4:3 proportion, for example, 8 by 6. This will make it easy for the production assistant or person working the graphics camera to change pages without having to manipulate and focus the camera for each graphic.

Use special blue paper provided in pads by TI when handwriting or drawing during class. They have been designed for television. Keep drawings within the 8- by 6-inch box, and use the light blue lines to guide the size of your letters. When using the 8- by 6-inch box size, make the letters about half an inch high.

## Examples of Visuals

The examples on the following pages have been prepared in an 8- by 6-inch format. They demonstrate the principles used for text visuals, as well as for graphs, charts, and illustrations. The rectangular border is provided to reinforce thinking horizontally and to show correct proportion. However, it is easier to manipulate, enlarge, and focus on a visual that does not have a border drawn around it. So be sure to remove the border from your final copy.

# Designing Visuals

**Think horizontal**

**Stay within a "box size" of 8 x 6**

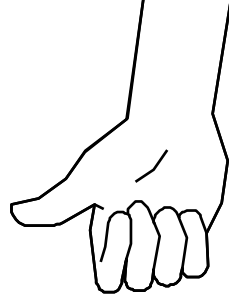
**Keep visuals simple**

**Use illustrations, graphs, charts, and diagrams**

**Use clean, bold lines**

# Rules of Thumb for Text

**Be concise—use key words or phrases**



**Use capital letters sparingly**

**Light letters on dark backgrounds are easy to read**

**Limit text to no more than seven lines**

# Instead of Text

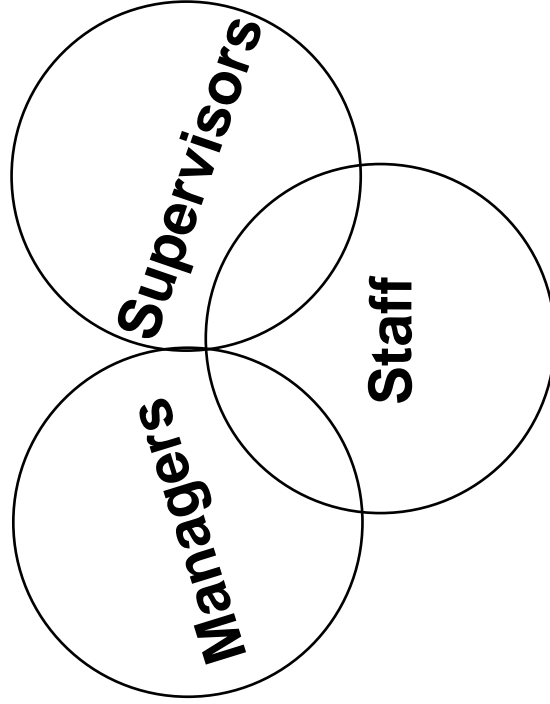
Quality Team includes:

Managers

Supervisors

Staff

# Use Visuals



Quality Team

# **Paper Copy vs. Monitor**

**Look at the next two graphics, "Use Word Pictures"**

**Which do you prefer on paper?**

**Now place them under the graphics camera**

**Which is easier to read ?**

## **Use Word Pictures**

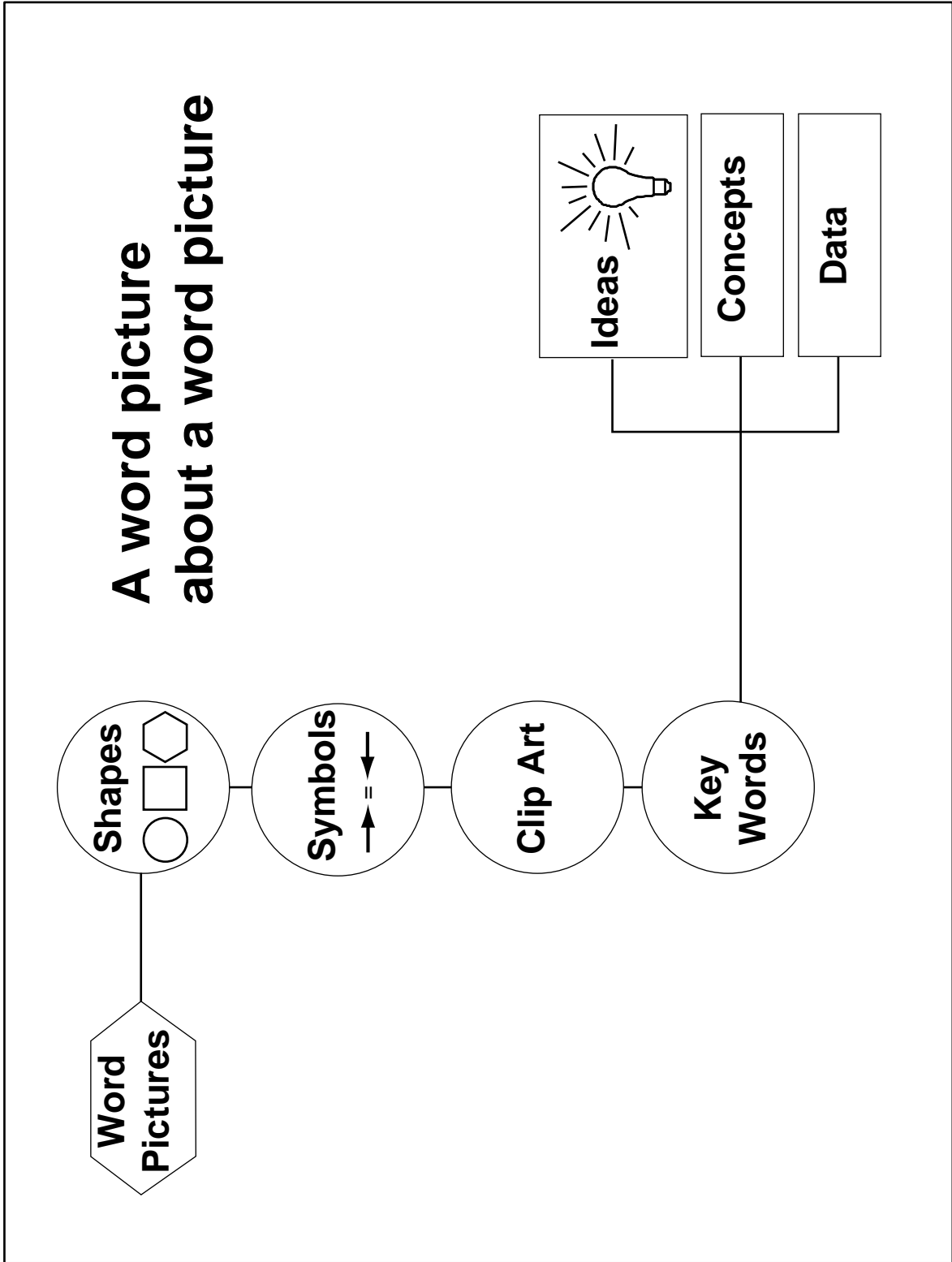
**Word Pictures are graphic representations of ideas, concepts, data, and numbers**

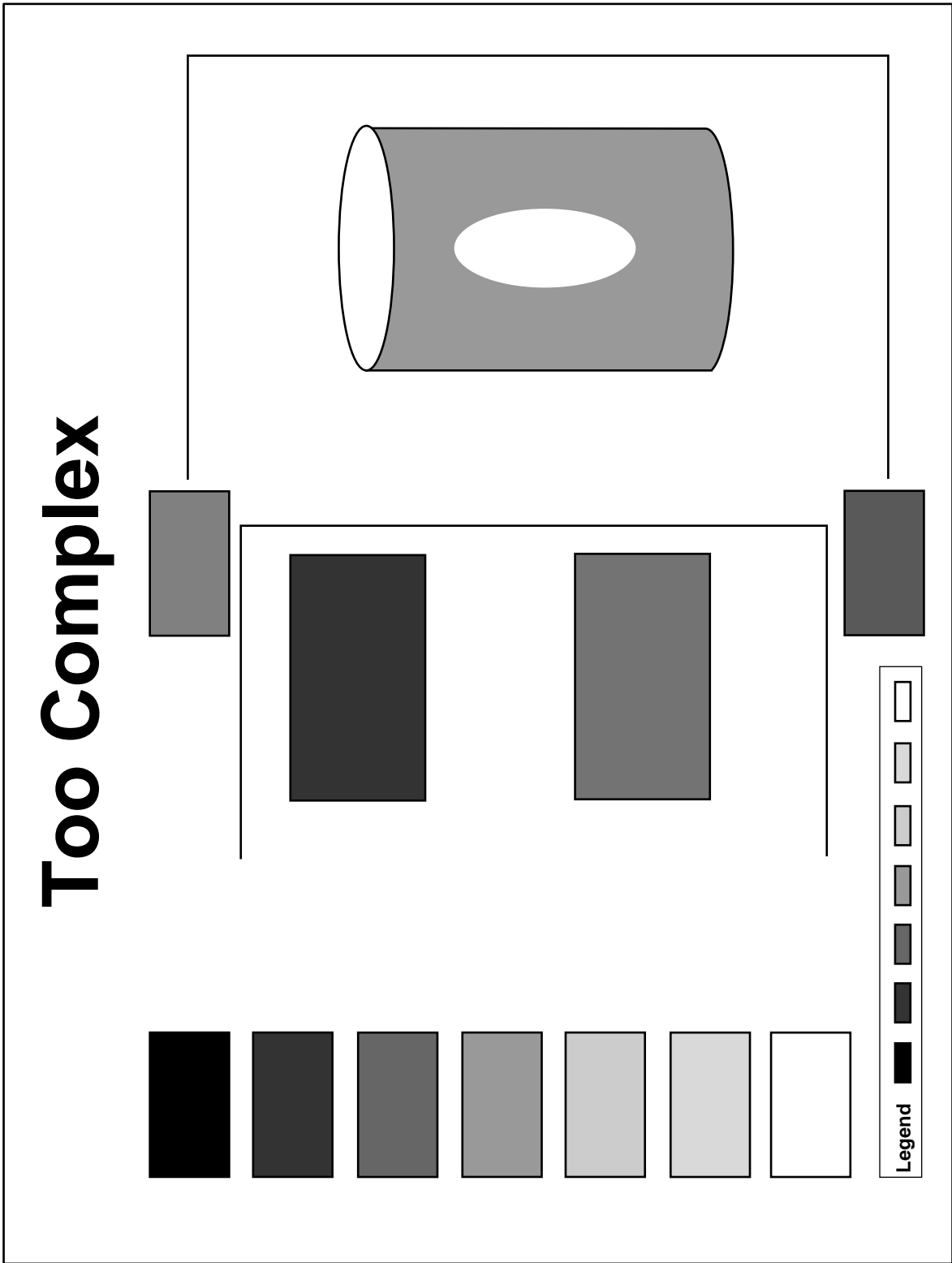
**Use Word Pictures**

**Word Pictures are graphic representations of ideas, concepts, data, and numbers**

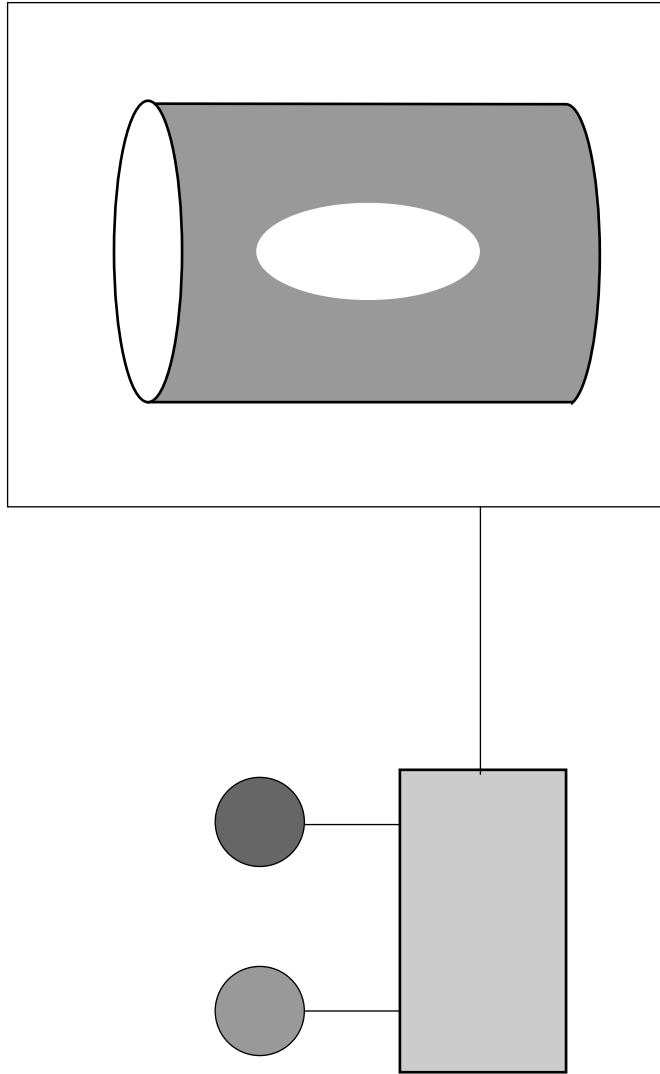


**Word Pictures use simple  
line art, geometric shapes,  
clip art, symbols, arrows,  
fonts, and color to show  
relationships**





# Keep Visuals Simple



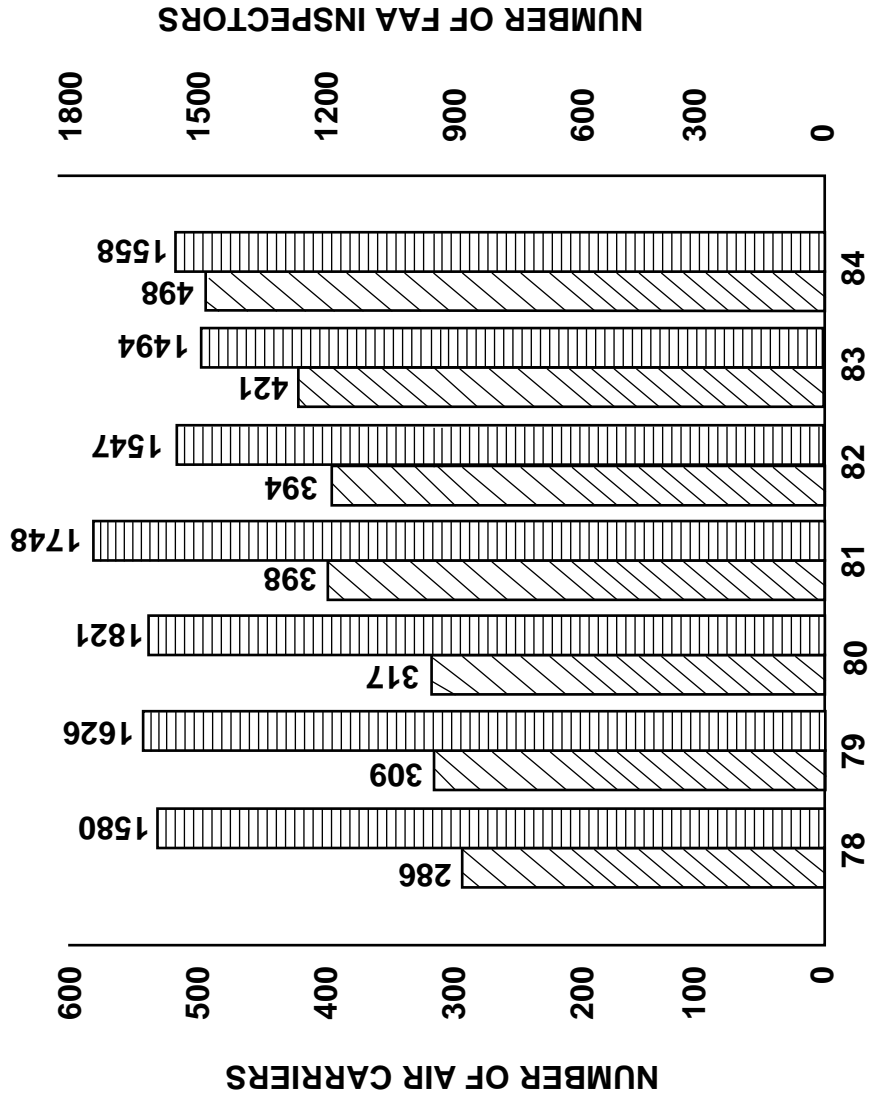
# Graphs and Charts

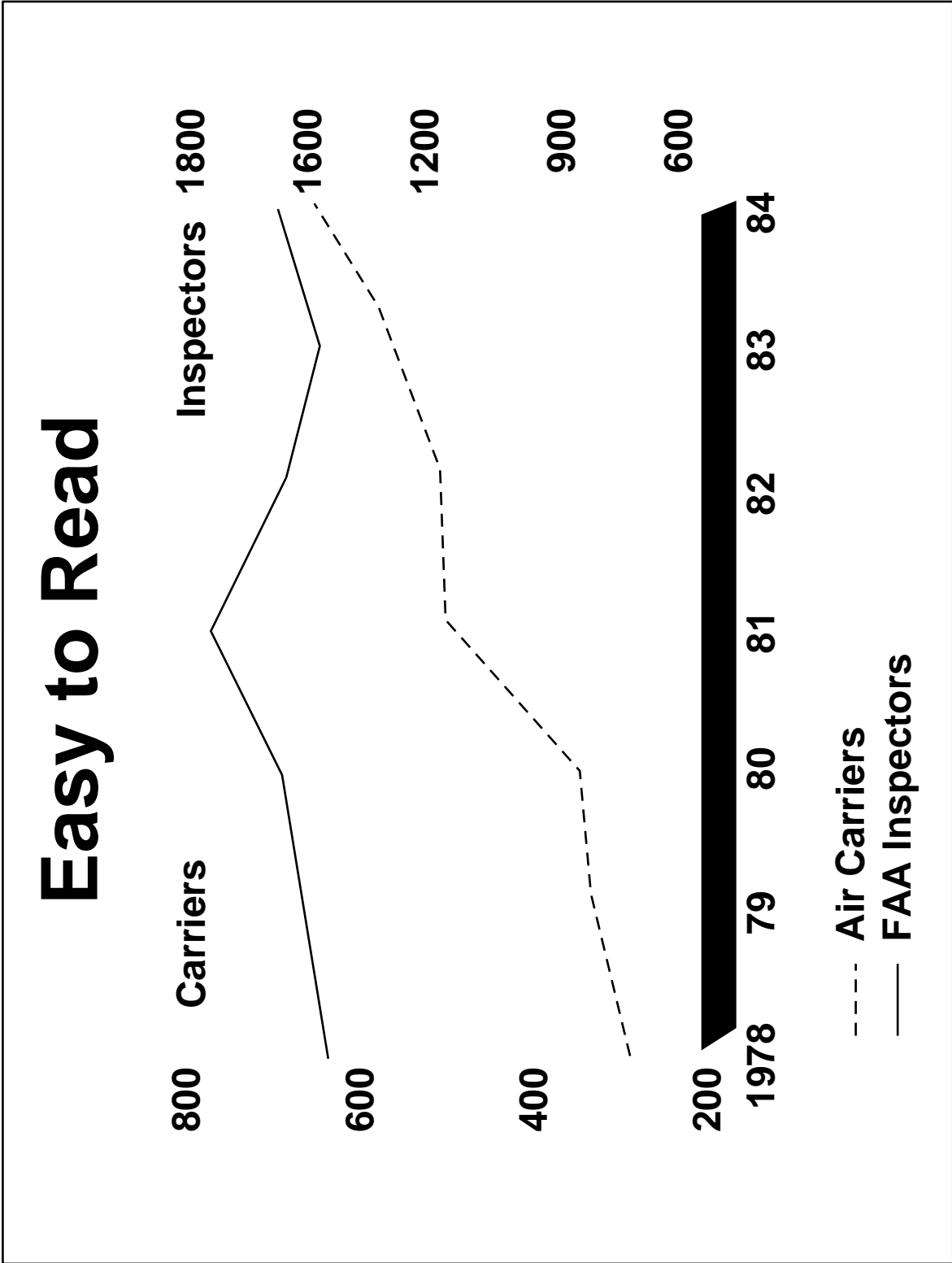
**Use fill-in shading, not lined patterns  
or dots**

**Avoid text that does not read left to right**

**Find simple ways to present data**

# Hard to Read





Leave space above and below  
an underline

|         |              |              |
|---------|--------------|--------------|
| Income  | \$2.5        | \$3.7        |
| Expense | \$2.4        | \$3.2        |
| Net     | <u>\$0.1</u> | <u>\$0.5</u> |



# **Point Size of Type**

**The guidelines on the next graphic are for a box size of 8 x 6**

**If you decrease the box size, decrease the typesize accordingly**

# **Use 36 Point for Headings**

**Use 24 point for subheadings or text**

- **Do not use less than 18 points or text will not be clearly readable to the television audience**

*When handwriting:*

*Use a dark, medium point,*

*felt-tip pen*

*Write large legible letters*

*Use the blue-lined pads*



## Chapter 7: Delivering the Video Teletraining Class

Once a course has been adapted for video teletraining, it must be effectively delivered. This chapter focuses on what you, as the instructor, need to do to properly prepare for and conduct a teletraining class, specifically,

- getting the class started,
- maintaining an interactive environment,
- presenting a positive image,
- working with the production assistant,
- developing a contingency plan, and
- conducting a practice session.

You will learn much through experience. Keep notes of what worked and what didn't, and share your ideas with other instructors.

## Getting Started

The course introduction sets the tone for your class. During this time, participants will form opinions about you, video teletraining, and ways in which you expect them to participate. As part of your introduction, you should always

- greet participants,
- provide an overview of the video teletraining equipment and establish ground rules,
- introduce participants,
- identify your expectations of participants and your commitments to the class,
- introduce assistants at the local and remote sites, and
- address administrative matters.

## Greet Participants

Start on time. Avoid comments such as “How are you?” since everyone will respond at once or participants won’t know what to say. In your opening,

- state your name,
- state the course purpose and its importance,
- note that your site is the transmitting site,
- direct attention to the first item of business, and
- let participants know what is expected.

## Provide an Overview of the Video Teletraining Equipment and Establish Ground Rules

Familiarize participants with the capabilities of the room system. Tell them

- what they will see on the left and right monitors,
- that the microphone is sensitive and how it can be muted, and
- that they can see and hear one another at all times.

For participants to understand their role in making the session run smoothly, ask them

- to sit within the camera’s view;
- to avoid side conversations;

- to speak directly into the microphone but naturally, as if participants at the remote site were sitting across the table from them;
- to allow the on-screen site to finish speaking before responding;
- to provide their names and identify the sites they are at when speaking; and
- to inform you when there is a technical problem, such as when a speaker cannot be heard, when a graphic is not displayed, or when the screen is blank for a long time.

**A**s a rule, food should not be eaten during a videoconference or teletraining session. Sounds from food wrapping and bags are picked up easily by the microphones, and the camera exaggerates the motions of eating so that they are more noticeable and distracting.

Also inform participants of

- policies for announcing latecomers and observers;
- procedures for handling technical problems; and
- food and drink policies, which may vary from site to site.

## Introduce Participants Using a Roll Call

Once you have verified that all sites are connected to the conference, introduce participants using a roll call.

In general, small groups can be more informal than large groups. A roll call for a small group can include a personal greeting, limited small talk, or socializing. This becomes unwieldy for large groups. In any case, keep control and direct questions to each site. The following are some roll call options for different-size groups:

### **Small Groups** (5-10 persons)

- Call on each person by name.
- Call on each person by name, and ask for a comment to be shared (reason for attending).
- Call on each city, and ask participants to introduce themselves individually in turn.
- Call on one person at each site, and ask that person to introduce others or report who is in attendance.

### **Medium-Sized Groups** (11-20 persons)

- Split the roll call by calling on half of the persons, then reviewing the agenda or course objectives, then continuing with remaining names.

## Large Groups (more than 20 persons)

- Call on each site, and ask a designated spokesperson to answer for the site.
- Call on each site, and ask a designated spokesperson to report the number of people present.
- Refer to the attendance list, and ask a designated spokesperson to report those who are *not* present.
- Refer to the attendance list, and ask those present but not listed to identify themselves.

Introducing participants is the first opportunity to establishing a dialogue with them, which is key to helping them overcome the passiveness of television watching. There are a number of ways you can encourage participants to actively participate:

- Ask each classroom to pick a class leader or a spokesperson. Observe this process, but try not to get involved.
- Have the spokesperson lead an “introduce yourself” session, allowing 20-30 seconds per person. The more participants, the less patient they become with introductions. Although introductions are important ice breakers, they should not take more than 15 minutes.
- If participants are in the local room as well as at the remote site(s), alternate introductions between (or among) rooms; minimize your on-camera presence during this time.
- To help you recall participant names, ask participants in the local room to write their names on tent cards. For remote rooms, prepare seating diagrams and label them with participant names, which can be done as participants arrive or introduce themselves, or annotate your class roster. (See fig. 7-1.)
- Ask the classroom spokesperson to introduce late arrivals or visitors in the remote site when it is appropriate.

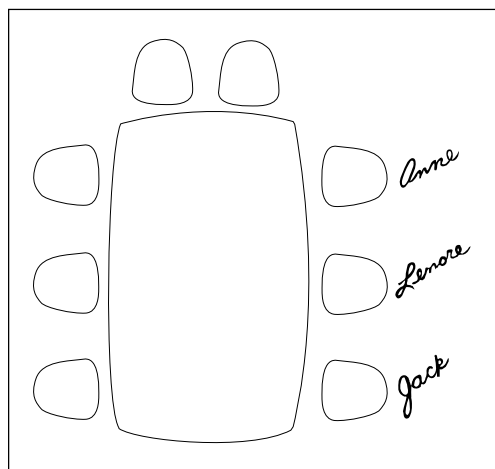


Figure 7-1: Sample Seating Diagram

## Identify Expectations and Commitments

List your expectations of the participants interspersed with your commitments to the class. The expectations and the commitments may incorporate the ground rules that you have established. The list is unique to you and your style, as well as the particular requirements of the course.

A typical list of expectations and commitments could look like this:

- I would like you to arrive on time and return from breaks promptly, given limited class time.
- I will adhere to the agenda times.
- I would like you to ask questions when things aren't clear and to let me know if something isn't working.
- I will answer all questions.
- I would like you to complete assignments between class sessions.
- I will make myself available for one-on-one questions between class sessions and after class.
- I would like you to stay within view of the camera and to give your name and site when speaking.

## Introduce Assistants at the Local and Remote Sites

The course manager and the regional training contact should have identified someone to operate the equipment at the remote site. If this was not done, recruit a volunteer and introduce this person. Introduce the production assistant at the local site as well.

## Address Administrative Matters

If the remote site coordinator has not done so, address the following administrative matters:

- Ensure that all participants have the materials that were shipped.
- Explain any system used for numbering handouts or graphics.
- Explain sign-in procedures and the method for returning evaluation forms.
- Review times of breaks. Be specific.
- Relate how to reach you or the course manager after class or between sessions.
- Provide a telephone number where participants can be reached in an emergency.



To announce a break, place a watch or small clock under the graphics camera and let participants know when they are to return. Or use a countdown videotape during the break.

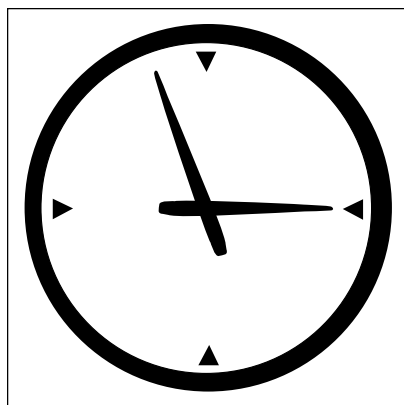


Figure 7-2: Clock Under the Graphics Camera

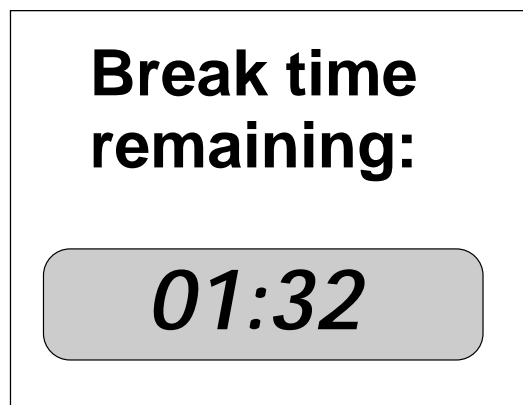


Figure 7-3: Videotape of a Countdown Clock to Indicate Time Elapsing During Breaks

## Maintaining an Interactive Environment

The teletraining course has been assessed for interaction, and activities have been designed to maintain participant attention in the video teletraining environment. However, ultimately the instructor must establish and maintain an interactive environment in course delivery. Although maintaining an interactive environment in a video teletraining class is much the same as in a traditional class, it can be more difficult to hold participants' attention because of the passiveness of television watching.

Managing disruptions can be particularly challenging in a video teletraining classroom. You cannot stand near a group of disruptive participants or give them a disapproving look. It is also difficult for a participant to ask you a private question. However, you can

- request that side conversations be avoided because of the sensitivity of the microphones;
- call on a disruptive participant by name, and ask if something is unclear;
- ask the participant to telephone you or fax you a question, then respond to it during the normal course of class; and
- be available “on camera” after the session has ended, which requires scheduling the session for time beyond the announced end time.

Disruptions in an adult learning environment, however, are rare. Primarily, you will need to bridge the distance between you and participants at the remote sites and obtain feedback from participants and answer participant questions to maintain an interactive environment.

## Bridge the Distance Between You and Remote Participants

There are a number of ways you can decrease the distance between your site (the local site) and remote sites:

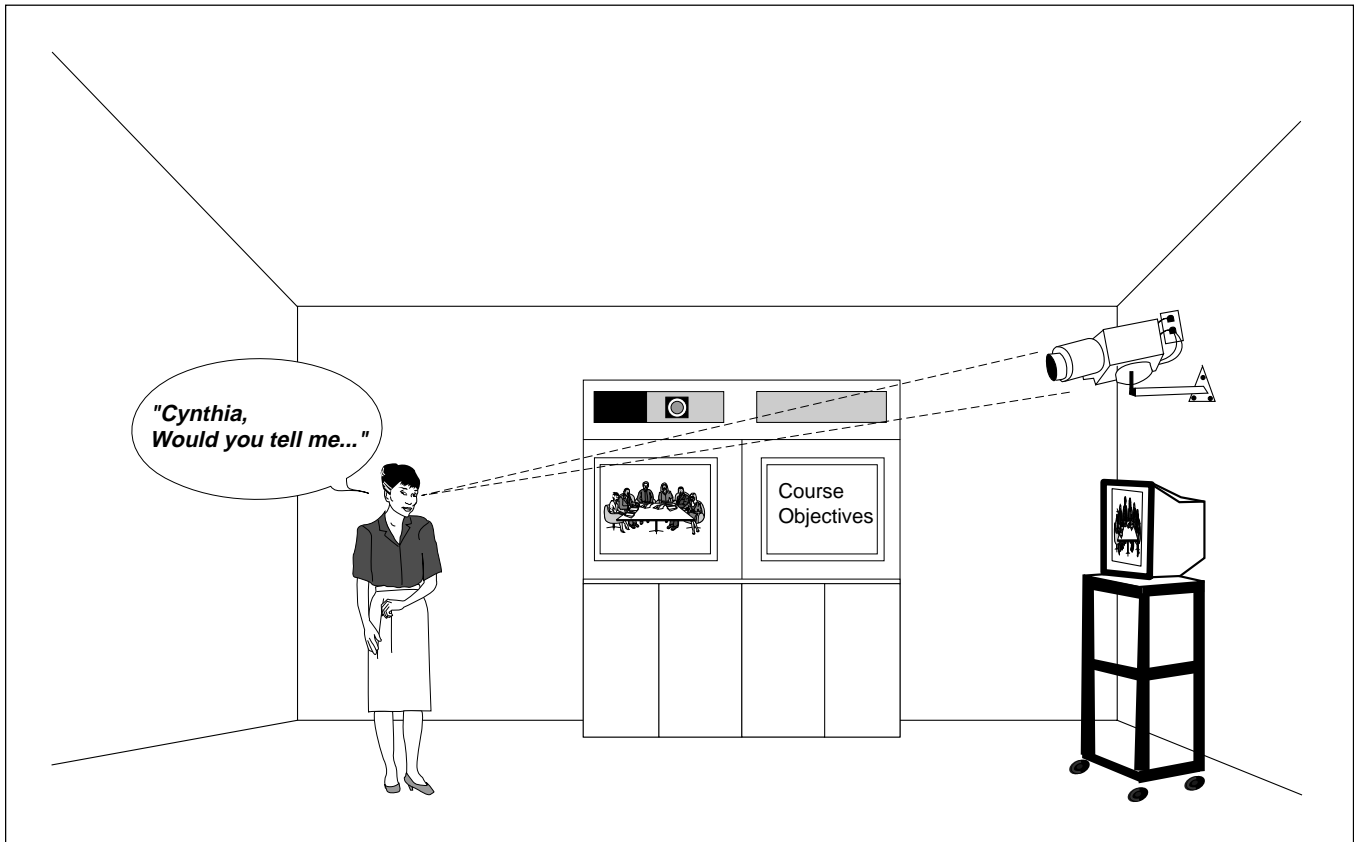


Figure 7-4: Using a Participant's Name

Interactive video technology does not guarantee interaction. Instructors and facilitators use interactive learning strategies to create interaction.

|               | Washington | Atlanta |
|---------------|------------|---------|
| 10:00 - 10:15 | I          | III     |
| 10:15 - 10:30 | III II     | I       |
| 10:30 - 10:45 | II         | III     |
| 10:45 - 11:00 | III        | III III |

Figure 7-5: Tracking Interaction

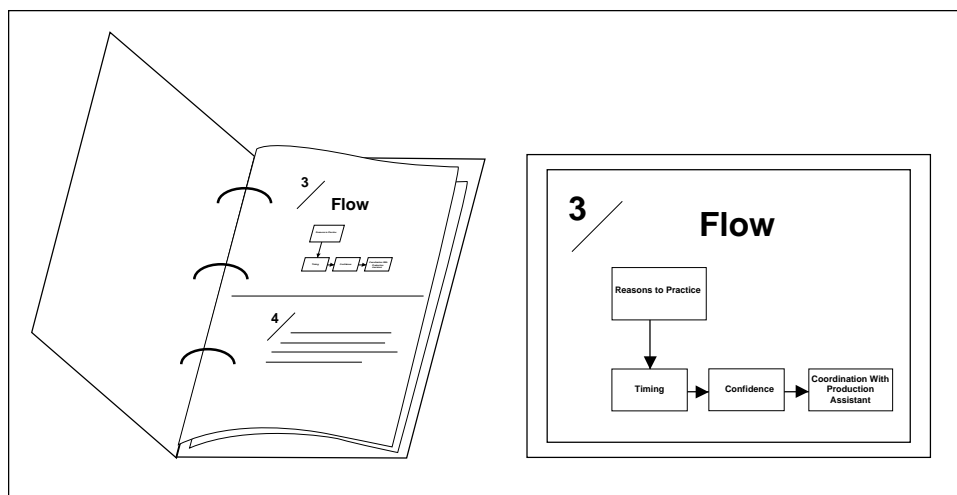


Figure 7-6: Mapping Participant Materials to What They See on the Monitor

- Maintain eye contact with remote site participants as much as possible by looking at or speaking to the camera.
- Use participant names whenever possible. (See fig. 7-4.)
- Get participants at all sites talking within the first 5 minutes of class.
- Use a conversational approach to teaching, not a one-way delivery of content.
- Give equal attention to all participant sites and verify that you are not favoring any one site. Until you are comfortable addressing all sites, you may want to ask the course manager, the production assistant, or a peer to track interaction for you. (See fig. 7-5.)
- At a minimum, look for 1-3 questions or responses from participants every 10-15 minutes.
- Keep everyone synchronized. Refer occasionally to a page number or specific graphic. Watch for signs that participants are lost, such as flipping pages back and forth. (See fig. 7-6.)
- Look for and create opportunities for participants to discuss issues among themselves and with you.
- Provide feedback to participants on progress.
- Let participants know how to reach you (phone hours, availability before and after class, electronic mail).
- Allow time for conversation or chatting between sites during breaks.
- Arrange for the remote site contact to stop in at mutually agreed upon times to see how participants are doing.
- Use active listening techniques as you normally would.

## Obtain Feedback and Answer Questions

Verbal feedback from participants becomes more important in a video teletraining situation, especially when there are more

In multipoint sessions, work out a verbal or a visual cue to signal a question from a remote site, such as

- asking participants to knock on the tables (this is short enough to avoid video switching from one site to another) or
- asking participants to use a single word, such as “question,” to get your attention but not be too disruptive.

You can also poll sites for questions.

than two sites participating. You will need to ask questions frequently to ensure that participants understand the course material. You will also need to let participants know how to get your attention if they have questions or comments.

**Confirm comprehension**—make sure that the answer you gave was understood by the participants. For example, ask “Does that answer your question, Mike?” or “Mike, is what I said clear?” This allows the participant who posed the question to answer “yes” or ask for further clarification. It also provides an opportunity for others to interject if the subject is still unclear.

**Direct questions to participants by name or title.** For example, “John, you’ve had some experience with this kind of situation; how did you handle it?” or “Do we have any lawyers in the class; can you tell us how to...?” Or direct questions to a site by city or time zone. For example, “Seattle, can anyone at your site think of a way to...?”

The video teletraining instructor must be aware of what the remote sites are seeing at any time, requiring close coordination with the production assistant.



Figure 7-7: Asking Directed Questions

Use nondirected questions in a discussion after several rounds of directed questions have been asked. Nondirected questions can be used to help move from one subject to another. For example, “Before we close the discussion on policies, does anyone have a final comment?”

## Presenting a Positive Image

Your image directly affects participants’ abilities to focus on course content.

Presenting a positive image means paying attention to how you look, move, and sound; how you use supporting materials; and how the room appears. You will need to practice

- staying within the camera’s eye as you move around the classroom,
- interacting with participants and your supporting visuals,
- working with a production assistant, and
- being aware of what is being transmitted.

## Consider How You Look, Move, and Sound

Almost everyone’s first reaction to being in a video teletraining classroom is “How will I look?”

### Dress for the Camera

#### Dress Tips for Men

- Avoid clipping metal pens to pockets; they can cause distracting light patterns.
- Avoid bold, patterned ties and bright white shirts.
- If you are concerned about possible shine from a bald spot, stand or sit in a location that does not have direct light shining on the top of your head or dust a little powder on the bald spot.

#### Dress Tips for Women

- Avoid clothing with ruffles and other trim that might be distracting, as well as bright, bold patterns and white blouses.
- Avoid dangling or shiny jewelry; it can be noisy, and shiny surfaces can cause distracting light patterns. Choose nonreflective metals and stones.
- Special make-up is not required. If the temperature is hot or humid, you may want to touch shiny spots with powder. Lipstick helps accent normal face color.

Your clothing should be comfortable and allow you to move easily. In addition, it should “transmit” well:

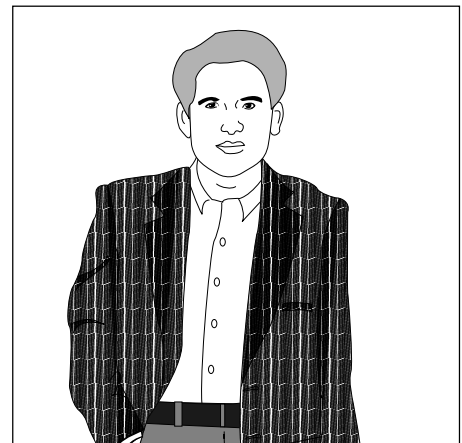


Figure 7-8: Clothing to Avoid



Figure 7-9: Clothing That Will Transmit Well on Camera

- Do not wear herringbones, plaids, and small stripes and patterns, as they will “shimmer” on camera, even if you remain fairly still.
- Pastel colors and solids transmit best.
- Glasses can reflect or hide your eyes from participants. If not essential, avoid wearing glasses, especially lenses that darken in direct light. Nonglare glasses work best.
- If you are to wear a microphone, be sure your clothing has lapels, a collar, or some other feature to which the microphone can be attached.
- If you are concerned that the camera will “add pounds,” wear clothes that are darker in color and have simple lines. Avoid horizontal stripes.

## Review Voice Practices

### **G**ood Voice Characteristics

- Volume: Easily heard, dynamic
- Pitch: Low, full, varied
- Quality: Open, clear, enthusiastic
- Articulation: Clear and crisp, with no mispronunciation
- Timing: Fluent, varied, not hesitant
- Variety: Natural, conveys emotion, friendly, energetic

Voice in video teletraining is similar to face-to-face instruction. These tips, then, are reminders:

- Remain natural and relaxed.
- Use normal speaking tones, speaking loudly enough for those in the room to hear you; the microphones will do the rest.
- Vary the pitch of your voice and pace of delivery—slower for new material, faster for familiar material.
- Converse with participants; pauses are appropriate while you wait for responses.
- Use your voice to convey enthusiasm.
- Be sure you can be heard and understood; nonverbal cues and feedback are sometimes harder to perceive.

## Use Natural Facial Expressions

Although the camera emphasizes facial expressions, you should relax and be yourself. Facial expressions of concern, humor, shock, or friendly interest are all strong forms of nonverbal communication and add interest to your presentation.

## Maintain Eye Contact

To make eye contact with participants at remote sites, look directly at the camera lens, as if the camera were a participant. The monitor showing remote sites is positioned under the camera so that you can see the remote site and look at the camera at the same time. Looking at the double monitors and the main camera in the room system when the auxiliary camera has been selected will cause remote sites to see your profile.

### Good Body Expression Characteristics

- Posture: Erect or relaxed, not slouching or stiff
- Gestures: Spontaneous, message enhancing
- Face: Friendly, animated, appropriate to content
- Eyes: Natural and smooth, with no set pattern

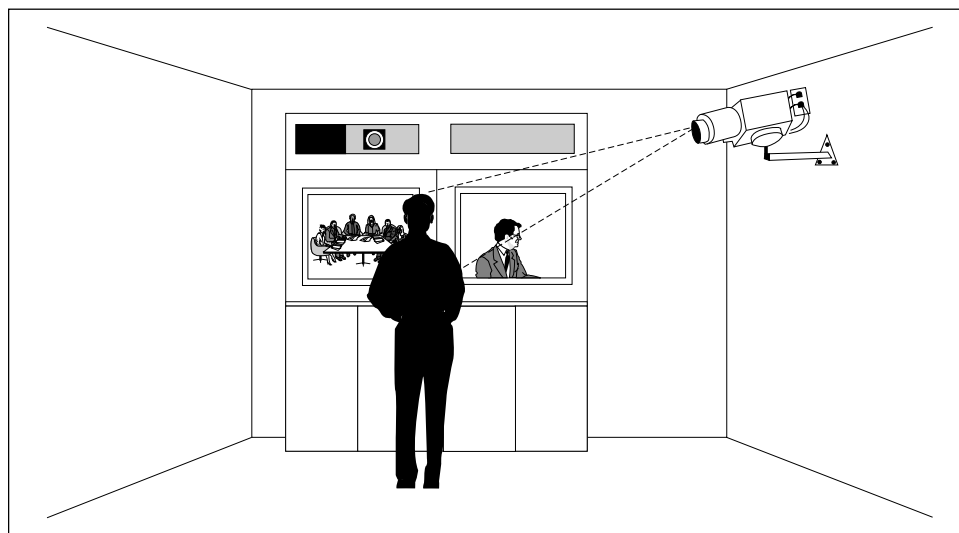


Figure 7-10: The presenter's profile is transmitted because he is looking at the monitor, not at the auxiliary camera.

Be sure to look at the camera when responding to a question from a participant at a remote site.

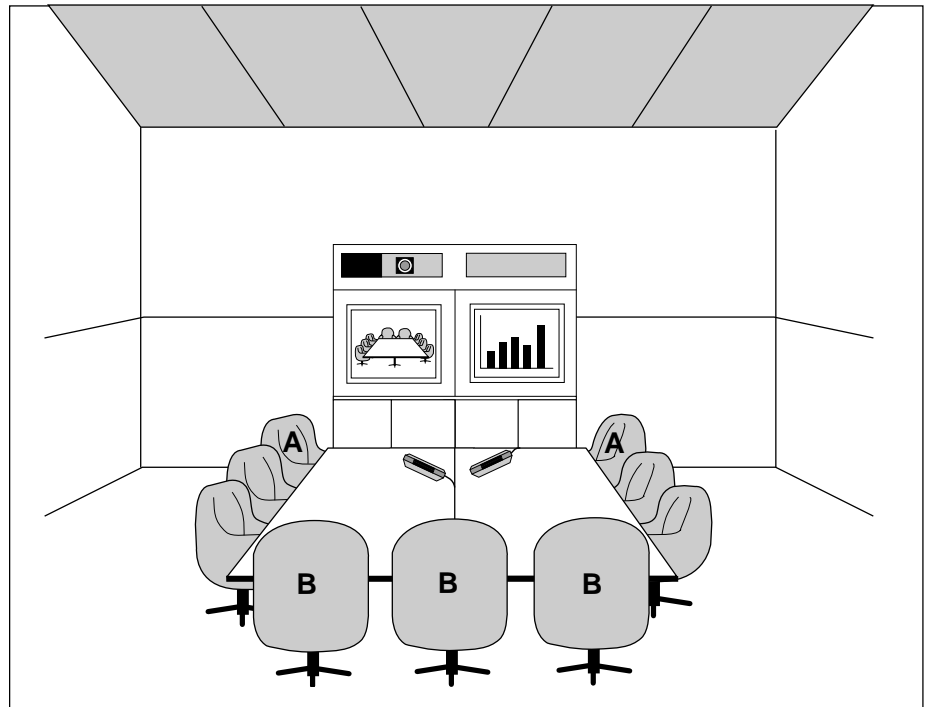
If participants are at the local site as well, maintain a balance between looking at participants in your classroom, the remote site monitor, and the auxiliary camera.

## Eye Contact Tips

- Hang a favorite picture or smiley face on or next to the camera to remind you to look that way.
- Position your notes high enough so that you can see them without constantly bobbing your head up and down. Move

your eyes, not your head, down. To maintain maximum eye contact, use notes as little as possible.

- If you are team-teaching or interviewing a subject matter expert as part of the class, look at the person when you speak, with occasional looks at the remote site or participants in the room. Position expert speakers so that they face the camera. (Guest speakers tend to favor looking at participants who are in the same room with them.)



*Figure 7-11: From position A, the presenter must turn away from the in-class participants to face the camera. From position B, the presenter can look directly at the camera and face in-class participants, but participants may turn away from the camera to view the presenter.*

## Be Aware of Your Gestures and Movements

**R**emember to smile often—it makes you look relaxed and friendly.

Keep gestures and movements simple and steady. Although you should avoid fast, sudden movements, you should vary your movement. Keep the following in mind.

- When sitting, center yourself in the chair; do not swivel or lean forward to speak into the microphone.
- When standing, avoid rocking or swaying.
- When walking, move slowly and avoid set patterns (like pacing), take small steps so the camera can follow you easily, and make sure you move within the range of the camera.
- Make sure that others can see and you are not blocking their view.



- Make sure that nothing is blocking the camera's view of you, for example, the arm of the graphics camera.
- Cue the production assistant as to your movements: "Let's move to group one to get their feedback" or "Let's go to the graphics camera where I'll write out an example for you."

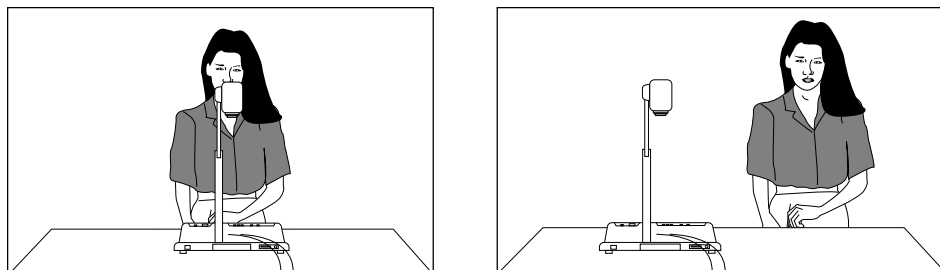


Figure 7-12: Blocked View and Unblocked View

A sudden, unexpected movement might cause you—or a limb—to disappear momentarily from view. Extremely fast movement can also cause “ghosting,” the appearance of a secondary image that shadows a moving subject.

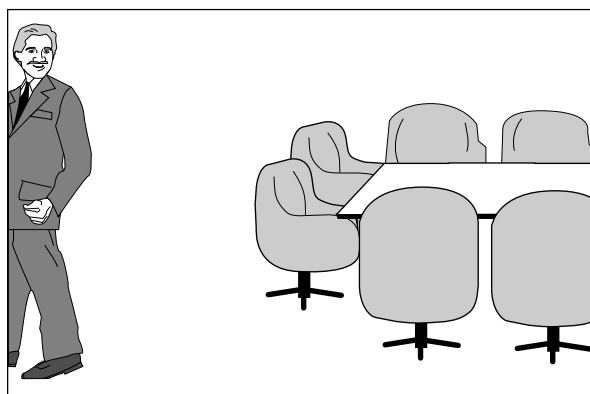


Figure 7-13: Sudden Movement Causing Part of the Instructor to Be Cut Off From the Camera's View

Planning where you will move during your session and sharing it in advance with the production assistant can help avoid these problems. When making a plan, also

- decide how you will work with your visuals and support materials—will you stand or sit?—and
- work out a way for the production assistant to let you know if what you are presenting is not visible to participants.

## Be Careful in Using Manuals and Notes

When teaching, you should learn to refer to the course manual and your notes as unobtrusively as possible. Because the camera

is placed higher than eye level, it emphasizes those instances when you look down. Therefore, you should move your eyes and not your head. Experiment and find a comfortable position that will allow you to see the manual or notes easily and maintain eye contact with participants at remote sites. Try

## Ways to Cue Visuals

Use the direct approach: “Look at graphic 15”; “Let’s take a look at the graphs”; “You should now be looking at...” Or be more subtle and use a visual description or key word: “On the first graphic, you will see a blue pie chart.”

- sitting at a table and propping the manual or notes on a stand,
- using a tabletop or a full-size lectern, and
- keeping notes or the manual in your hands as you move.

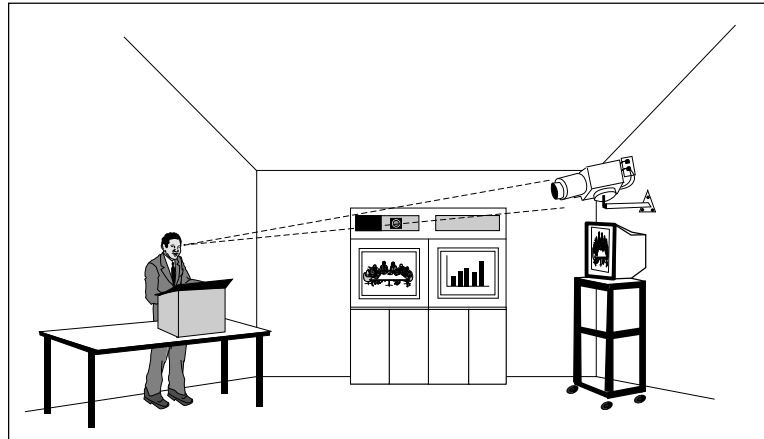


Figure 7-14: Maintaining Eye Contact With Participants While Using Notes

Whichever approach you use, practice it; learn to use graphics and class exercises as cues.

## Check Room Appearance

Regardless of how good you look, participants will be distracted from you and the course content if the local room is cluttered.

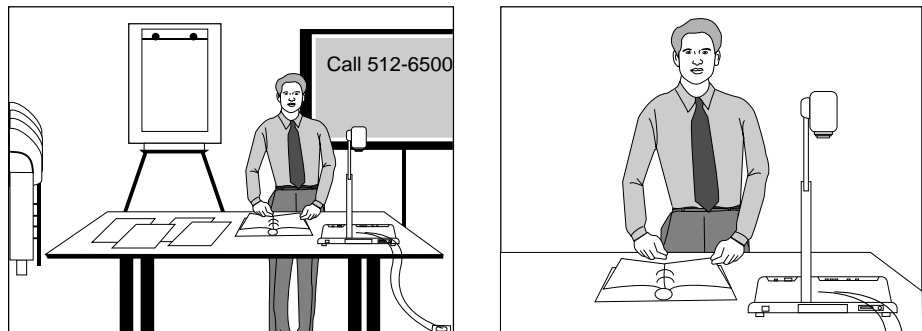


Figure 7-15: Cluttered Room and Noncluttered Room

- Consider, especially, the background behind you and behind the participants. Move furniture and equipment that is not being used, such as empty or stacked chairs,

tables, whiteboards, PCs, printers, and telephones, out of the camera's eye.

- Keep clutter off tabletops as much as possible.
- Darken side windows, if any, to avoid glare.

## Working With the Production Assistant

**T**he only way for instructors to put all this together is to practice. The quality of the presentation is affected by what they know about videoconferencing and the corresponding adjustments they need to make to meet distant participant needs. — GAO Course Manager

The production assistant is responsible for what the remote site sees; therefore, you will need to spend some time together to discuss what will happen in class. Be prepared to talk about

- which audiovisual support materials (graphics on the graphics camera, VHS tapes, computers) will be used and when;
- how the room will be laid out (table and equipment placement, seating arrangements);
- which primary camera shots are to be used (where you will stand, sit, and walk) and which presets can be used to allow for smoother camera movement;
- where the camera should be focused during discussion sessions or group activities (all sites);
- how you will “cue” the production assistant;
- how you will handle technical difficulties;
- who the remote site contacts and their backups are and what their phone numbers are;
- how and when you and the production assistant will conduct a walk-through or practice session;
- who will work the graphics camera and how this will affect the camera's placement; and
- whether or not you will use the PIP function (see ch. 2) to see what your site is transmitting. (The PIP will use up about 25 percent of the monitor space; those in your room may not see the entire graphic.)

## Developing a Contingency Plan

Participants will rely on you to inform them of what is happening if a problem occurs. Plan for handling technical problems at the local and remote sites. You may want to review your plan with remote site personnel (your contact and a technical support contact if they are not the same person). Questions you should ask to develop your plan include the following:

- What should you try to correct yourself?
- At what point do you contact technical support at the remote site? Is there a beeper number for the contact?
- How quickly should you expect technical support personnel to respond to your call?

- How long should you wait before canceling the class or trying to continue by audioconference?
- If a piece of equipment malfunctions, what could you use instead (e.g., if the main camera fails, can you use the auxiliary or graphics camera)?
- How will you reach participants, especially if the audio fails (e.g., what is the conference room phone number)?

## Conducting a Practice Session

Practicing is important for conducting any class, but the additional dynamics of working with multiple sites and a production assistant make practice more critical to the video teletrainer. The surest way to fail is to assume that you can conduct your class without a practice session.

The video teletraining design team will organize a practice session for your class. This is essential for timing, confidence, and coordination with the production assistant. Including “live” participants will help you focus on eye contact and interaction.

## Practice Using the Equipment

A production assistant will be available to help you during class. However, learning some equipment functions and practicing basic camera movements will help you give basic directions to remote sites if they need help, communicate better with the production assistant about what you want, and explain to a distant site why they see what they see. (See chs. 2 and 5.) Having these skills will increase your confidence in delivering the course.

**A** common mistake instructors and others make is to leave the graphic on “live” while moving on to another topic. Remember, when the live graphic is on the monitor, you are not. Be sure to signal the production assistant when you are finished with the graphic or the paper so that your image is restored to the monitor.

## Work With Audiovisual Materials

You will need to give some advance thought to the placement of your audiovisual materials in the classroom. The graphics camera, a VCR, a computer, and traditional media you used in the past are all available to you. The trick is in knowing exactly when to use each in class, where to place it, and who will work or use a particular piece of equipment.

Suppose your course design calls for a short presentation with paper graphics, followed by a brainstorming session and group discussion where you will write participant responses. Both activities call for use of the graphics camera. You would

like the production assistant to work the camera for the presentation, but you will be writing the responses. Where should the camera be placed so you both can use it? Should the camera be moved? Should you move to the camera? Or suppose your course design calls for showing a videotape. Someone must put the tape in the player and stop and start it at the correct time. How will this be handled?

Most instructors encounter situations where they will use the graphics camera. To minimize distractions, practice with the camera ahead of time.

- Place the graphics camera near you.
- Work the focus and zoom buttons. If your graphics are consistent in size, you will not need to continually adjust the focus.
- Know when and how to use the two-color reverse image feature.
- Know where you will place the graphic or paper (mark with tape).
- Place the graphics in the appropriate order. (Make sure that the graphics are numbered.)
- When writing, keep the paper straight and use a medium or large-tip marker and special blue paper designed for use with the camera. Pads of this blue paper are available through TI.

## Assess Your Performance

There are several ways you can get feedback on your video teletraining style. Try practicing a small segment of the course that has visuals and some instructor movement, and assess the practice in one of the following ways:

- Ask a member of the design team or an experienced video teletrainer to coach you.
- Tape the session using the built-in VCR.
- Make a reservation for a two-point call, and have a peer in the remote room give you feedback.
- Request a “loopback” session to see yourself on the monitor as the distant participants would see you.
- Practice with a production assistant to evaluate all aspects of the outgoing image.

The following checklist can help you assess your videotaped performance. Or you can give the checklist to a peer or a coach and ask this person to provide feedback on specific areas that you have identified.

## Video Teletraining Delivery Checklist

Yes      No

### ***Getting Started***

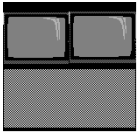
- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Arrived early and reviewed arrangements with production assistant, double-checked camera presets, and prepared to meet participants. |
| <input type="checkbox"/> | <input type="checkbox"/> | Started on time.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Explained video teletraining protocols at the beginning of class.  |

### ***Maintaining an Interactive Environment***

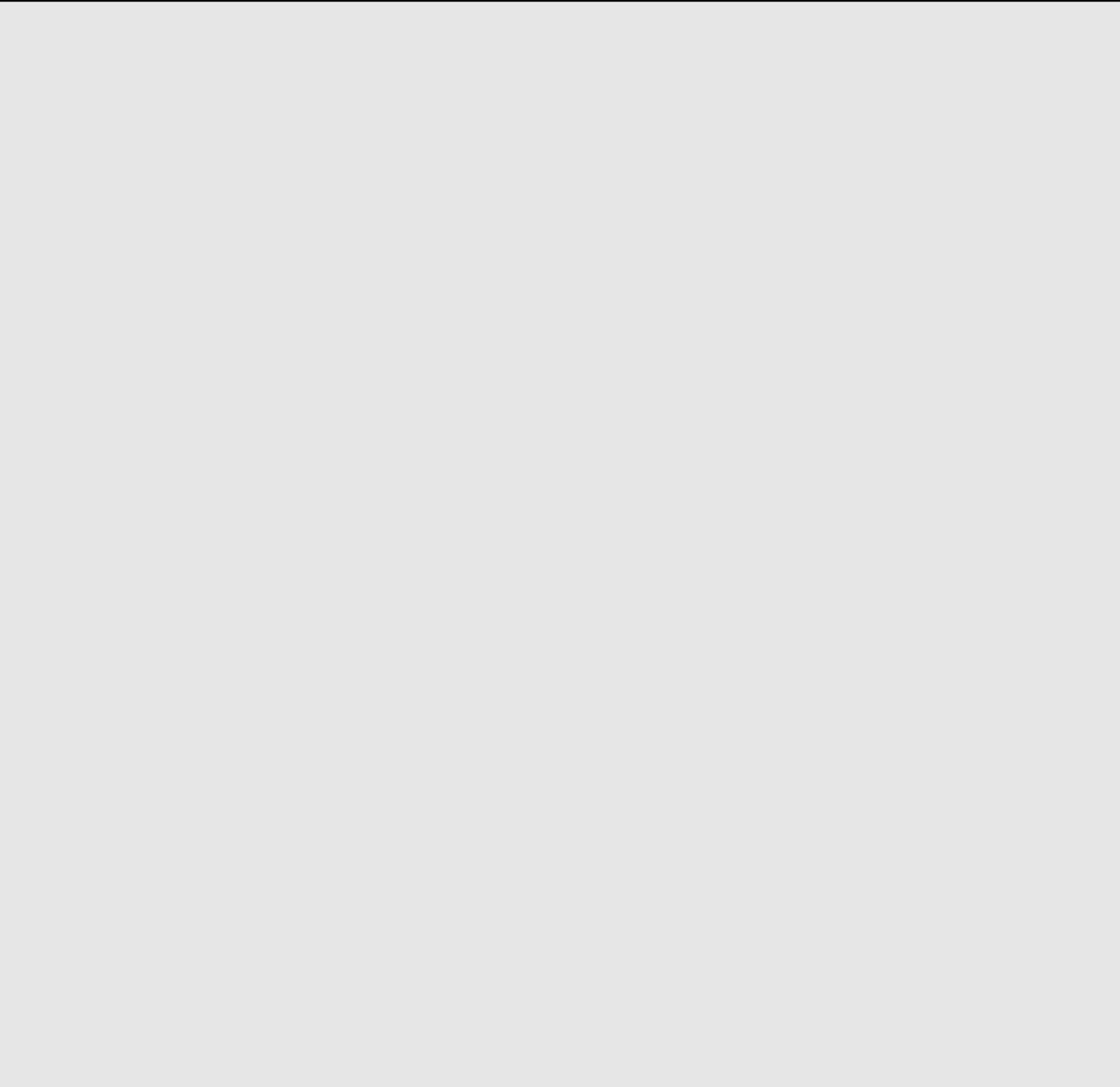
- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Used names when addressing participants.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Achieved interaction during first 5 minutes of class.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Balanced interaction between all participating sites; spoke to each remote site participant at some point during class. |
| <input type="checkbox"/> | <input type="checkbox"/> | Repeated questions before answering them.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Offered to summarize material later or during a break as latecomers were announced.                                     |

### ***Presenting a Positive Image***

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Maintained a friendly presence and smiled. Used a conversational approach.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Maintained eye contact with in-class and remote participants.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Spoke in a clear voice, used inflection, and varied pace.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Looked at the camera when addressing remote sites.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Avoided looking down at notes for extended periods.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Directed production assistant or participants to show the speaker on the camera, as appropriate, for lengthier comments and questions.              |
| <input type="checkbox"/> | <input type="checkbox"/> | Placed teaching materials and tools within easy reach.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Used the graphics camera in a nondistracting manner, and signaled the production assistant to return to the main camera when done with the graphic. |



# Glossary



|                              |   |
|------------------------------|---|
| <b>analog transmission</b>   | Transmission of information by a continuous wave. Broadcast television, cable television, and AM/FM radio are examples of analog transmissions. (Contrast with <i>digital transmission</i> .)   |
| <b>aspect ratio</b>          | The ratio of a picture's width to height. In videoconferencing, this ratio is 4 units wide by 3 units high, or 4:3.   |
| <b>audio privacy</b>         | The ability to mute microphones from the control panel so that sound in the local room does not transmit to remote rooms.   |
| <b>auxiliary camera</b>      | An optional camera, usually mounted on a side wall or tripod.   |
| <b>backlight</b>             | A special light, controlled by its own power switch, on the graphics camera used for 35mm slides.   |
| <b>broadcast site</b>        | Site whose signals are currently transmitting to all other sites. Also called origination site.   |
| <b>built-in illuminator</b>  | See <i>backlight</i> .  |
| <b>cascade</b>               | Connection of two multipoint control units.   |
| <b>clipping</b>              | The shortening or the cutting off of words because more than one person is speaking at a time or because there is noise beyond the range of the audio equipment.  |
| <b>close-up shot</b>         | A camera shot with a narrow scope, such as a subject's shoulders and head.  |
| <b>codec (coder/decoder)</b> | A device that converts an analog signal into a digital signal for transmission and converts it back to analog for display at the remote site. Codecs used for videoconferencing compress the analog video signal, allowing it to be transmitted less expensively. |
| <b>compressed video</b>      | A video signal requiring less information to transmit than broadcast quality or full-motion video. Digital technology is used to encode and compress the signal.  |
| <b>computer conferencing</b> | Allows persons at different locations to communicate directly with each other through computers. Communication may be real time or delayed. Document conferencing is a type of computer conferencing.   |
| <b>console</b>               | See <i>room system</i> .  |
| <b>control panel</b>         | A device used to select images to be seen by other sites. Used to control camera position and select other videoconferencing features.  |

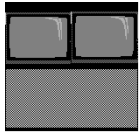


|                                 |  |
|---------------------------------|--|
| <b>dial up</b>                  | The ability of sites to call one another at the time they want a videoconference to start.   |
| <b>digital compressed video</b> | See <i>compressed video</i> .  |
| <b>digital transmission</b>     | Transmission of information by a code of discrete binary signals (on and off, zero and one, high and low, etc.). Digital transmission is expressed by number of bits per second. (Contrast with <i>analog transmission</i> .)    |
| <b>distance education</b>       | See <i>distance learning</i> .   |
| <b>distance learning</b>        | The delivery of educational courses where the instructor and participants are at two sites.  |
| <b>distant room</b>             | See <i>remote site</i> .   |
| <b>document conferencing</b>    | Allows persons in two locations to use their PCs to work simultaneously on a single electronic file. The videoconferencing system is used to establish the connection between the PCs. (See also <i>computer conferencing</i> .) |
| <b>document stand</b>           | See <i>graphics camera</i> .   |
| <b>downlink site</b>            | The remote site in instructional television, which receives the transmission signal from a satellite. Also called receive site.  |
| <b>echo</b>                     | The reflection of signal energy, which causes the signal to return to the transmitter or to the receiver. In videoconferences, echo is typically caused by improper positioning of microphones or high volume of incoming sound. |
| <b>Elmo</b>                     | See <i>graphics camera</i> .   |
| <b>extreme close-up</b>         | A camera shot with an extremely narrow scope, such as a detail of a large object.  |
| <b>far-end site</b>             | See <i>remote site</i> .   |
| <b>full-motion graphics</b>     | Live-mode transmission of a picture on the graphics camera so that participants can see writing or annotation as it occurs. The picture is displayed on the left monitor. (Contrast with <i>still mode</i> .)                    |
| <b>Gallery 225</b>              | The room system in GAO's Training Institute.   |
| <b>graphics camera</b>          | An optional camera and stand used to send graphics and visuals to remote sites. (All GAO sites have graphics cameras.)   |
| <b>graphics tablet</b>          | See <i>graphics camera</i> .   |

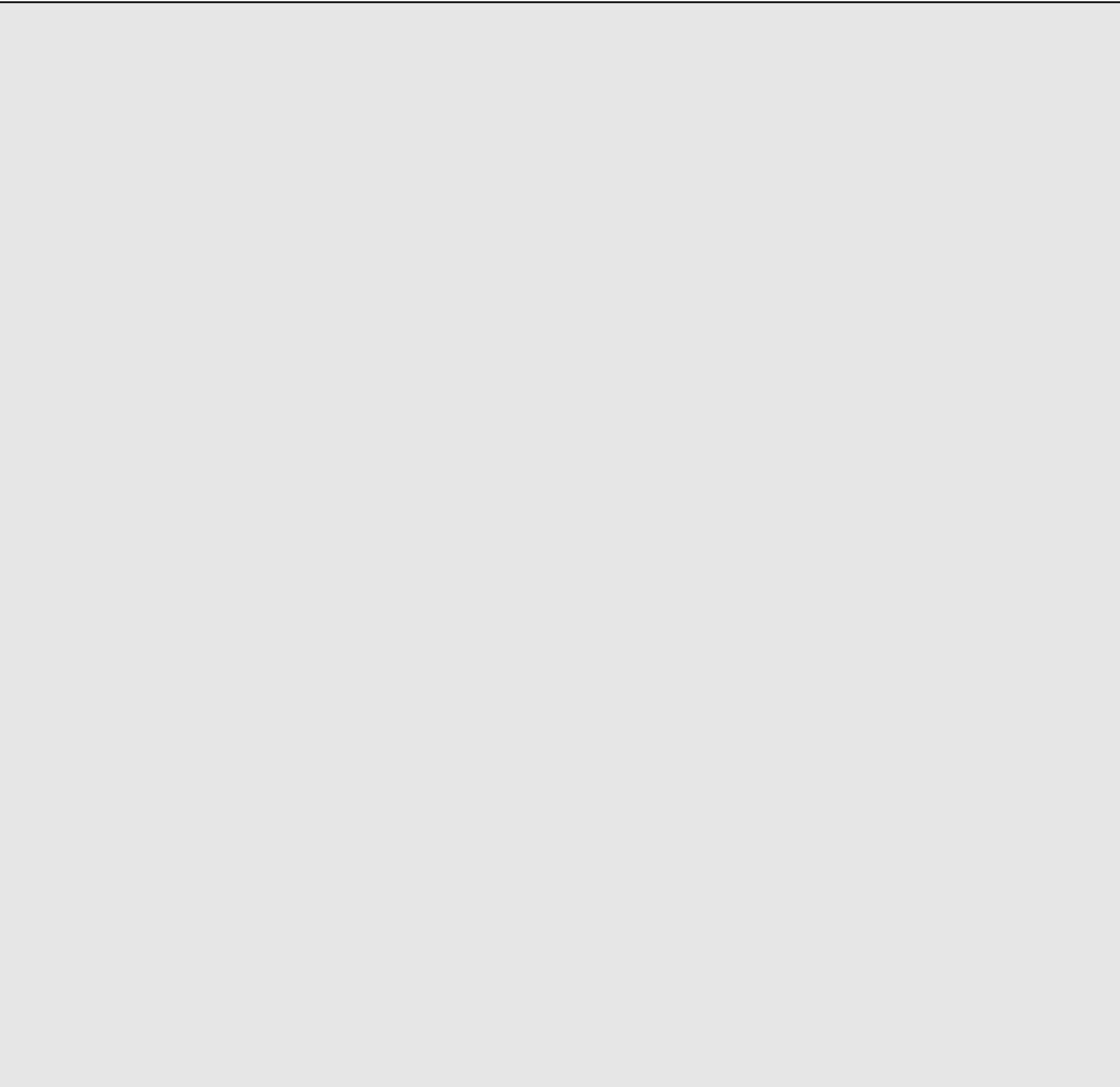
|                                       |  |
|---------------------------------------|--|
| <b>headroom</b>                       | The amount of space between the top of the subject and the top of the monitor.   |
| <b>host site</b>                      | See <i>local site</i> .  |
| <b>instructional television (ITV)</b> | The delivery of training via satellite broadcast.  |
| <b>interactive video</b>              | The ability to transmit and receive two-way video transmissions between two or more sites.   |
| <b>ITV</b>                            | See <i>instructional television</i> .  |
| <b>live mode</b>                      | See <i>full-motion graphics</i> .  |
| <b>local site</b>                     | The site originating the transmission—usually the instructor room. Also called host, near-end, origination, transmit, or broadcast site. (Contrast with <i>remote site</i> .)  |
| <b>long shot</b>                      | A camera shot with a wide scope, such as an entire subject and surrounding area.   |
| <b>loopback</b>                       | Setting the send and the receive capability of the room equipment to simulate a receiving room on the left monitor. (Loopback allows instructors to see themselves as viewers at a distant location would see them). |
| <b>main camera</b>                    | The camera that relays an image of the action at the local site to remote sites. The main camera is located above the monitors.  |
| <b>main unit</b>                      | See <i>room system</i> .   |
| <b>MCU</b>                            | See <i>multipoint control unit</i> .   |
| <b>medium shot</b>                    | A camera shot with a medium scope, such as the area from the subject's head to just above the subject's waist and part of the surrounding area.  |
| <b>monitor</b>                        | A television screen.   |
| <b>multiplexer</b>                    | A device that takes input from a number of sources and combines them into a single data stream for simultaneous transmission. In videoconferencing, video, audio, and data signals are combined.                     |
| <b>multipoint conference</b>          | A videoconference with three or more connected rooms.  |
| <b>multipoint control unit (MCU)</b>  | A device used in conjunction with the codec to perform video and audio switching between three or more sites on a videoconference.   |

|                                  |   |
|----------------------------------|---|
| <b>near-end site</b>             | See <i>local site</i> .   |
| <b>off-net site</b>              | A non-GAO videoconference site.   |
| <b>origination site</b>          | See <i>broadcast site</i> .   |
| <b>pan</b>                       | Movement of the camera left or right.   |
| <b>phone add</b>                 | A feature that adds participants at a nonvideoconference site to the videoconference by telephone.  |
| <b>picture-in-picture (PIP)</b>  | A small picture that covers approximately one quarter of a still graphic.   |
| <b>PIP</b>                       | See <i>picture-in-picture</i> .   |
| <b>point-to-point conference</b> | A videoconference between two sites.  |
| <b>preset</b>                    | A camera shot that has been stored.   |
| <b>preview</b>                   | The ability to view a camera shot before (or while) it is transmitted.  |
| <b>production assistant</b>      | The person who operates the videoconferencing equipment during a class.   |
| <b>receive site</b>              | See <i>downlink site</i> .  |
| <b>receiving room</b>            | See <i>remote site</i> .  |
| <b>remote room</b>               | See <i>remote site</i> .  |
| <b>remote site</b>               | The site receiving the local room transmission; the site is seen on the left monitor in the local room. Also called distant, remote, or receiving room or far-end site.   |
| <b>remote site coordinator</b>   | The person who handles administration and logistics at the participating remote site. Specific responsibilities vary depending on the class. Remote site coordinators may be regional training coordinators, designated facilitators, or TAG staff who provide technical support for the videoconference rooms. |
| <b>rollabout</b>                 | See <i>room system</i> .  |
| <b>room controller</b>           | See <i>control panel</i> .  |
| <b>room system</b>               | A cabinet housing monitors, the camera, the audio system, the video system, the codec, and other telecommunications equipment. Also called console, rollabout, or main unit.  |

|   |   |
|---|---|
| <b>still mode</b>                           | Transmission of a graphic, chart, or other picture so that it appears frozen on the right monitor. (Contrast with <i>full-motion graphics</i> .)  |
| <b>TelePrompTer</b><br>( <i>trademark</i> ) | A device for unrolling a magnified script in front of a speaker on television.  |
| <b>teletraining</b>                         | The delivery of training via any form of teleconferencing.  |
| <b>tilt</b>                                 | Movement of the camera up and down.   |
| <b>train</b>                                | A method of setting the audio system to the current room acoustics.   |
| <b>transmit site</b>                        | See <i>uplink site</i> .  |
| <b>uplink site</b>                          | The local site in instructional television. Also called broadcast or transmit site.   |
| <b>videoconference</b>                      | A form of teleconferencing that uses voice and video communications.  |
| <b>video input</b>                          | See <i>video source</i> .   |
| <b>video source</b>                         | Any device capable of transmitting a video image, such as a main, an auxiliary, or a graphics camera or a VCR.  |
| <b>video teletraining</b>                   | The delivery of training via a videoconference.   |
| <b>voice-activated switching</b>            | Process where the video-transmitting location is determined by the location generating the most sound; the picture on the left screen is normally originating from the site of the person currently speaking. |
| <b>white noise</b>                          | A screeching sound made when the audio system adjusts to the acoustics of the room.   |
| <b>wide shot</b>                            | See <i>long shot</i> .  |
| <b>zoom</b>                                 | Movement of the camera in and out to change the scope of the image.   |



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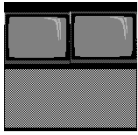
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