Distance Education and Instructional Technology
TIP Series on Instructional Effectiveness

Successful Video Conferencing Guide
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Introduction to Video Conferencing

A brief overview of video conferencing and its basic components.

To trace video conferencing (or videoconferencing) back to its origin, one needs to trek back to the 1960s. During the 60s, AT&T debuted the PicturePhone during the World’s Fair in New York City (Roberts, 2004).

What is Video conferencing? Video conferencing uses telecommunications of audio and video to bring people at different sites together for a meeting. This can be as simple as a conversation between two people in private offices (point-to-point) or involve several sites (multi-point) with more than one person in large rooms at different sites. Besides the audio and visual transmission of meeting activities, videoconferencing can be used to share documents, computer-displayed information, and whiteboards.

Basic Components of Video Conference

The basic components of a videoconference unit are:

- Cameras: at least one, preferably two PTZ (pan, tilt, zoom) cameras, one to show the instructor at the front of the room and one to show the students
- Displays – TV, monitor, or projector (one for students to view content and one for the instructor to see remote students
- Audio, Microphones – depending on the size of the room – desktop microphones, ceiling microphones or for smaller rooms, one omni-directional microphone.
- Codec (Encoder/decoder of digital signal)
  - Software only – example: Collaborate
  - Desktop/Laptop – example: Polycom ViaVideo
  - Set-top devices - example: LifeSize
  - PC Integrated Codec – example: Polycom iPower

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- HD (H.264) Codec – example: LifeSize and Polycom (in DLC)
- User interface and control device (Crestron)
- Laptop or desktop computer
- Recording device or connection to media server
- High speed internet connection.

Video Conferencing at DeSales

DeSales University has both Web-based video conferencing via Blackboard Collaborate and videoconferencing facilities at each of our campuses.

Collaborate is a Web-based teaching, learning and collaboration environment.

- Unlimited sessions, recordings of sessions for later playback
- Transmits audio, video, computer desktop and applications, and Web content
- Allows for quizzing, polling, break-out rooms, whiteboard interactions

- Polycom HDX9000 Series Codec
- Twenty-eight (28) Student stations equipped with individual laptops and push-to-talk (PTT) microphones
- Wireless lavaliere microphone for instructor
- Three (3) Cameras:
  - Student camera
  - Instructor camera
  - Whiteboard camera
- Displays:
  - Projector (for display of instructor content)
  - 50” LCD monitor (front) for display of far-site students (student view)
  - 50” LCD monitor (back) for display of far-site students (instructor view)
  - 70” LCD monitor (back) for display of far-site students (instructor view)
  - 20” desktop LCD monitor for display of far-site students (instructor view)
- Content projection/transmission capabilities:
  - Instructor PC
  - Laptop
  - Elmo document camera
  - DVD/VCR/Blu-Ray playback
- Recording capabilities:
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- Streaming media server (.mp4)
- Bandwidth capabilities:
  - 1 MB (minimum) to 5 MB (maximum)

Easton Campus

- LifeSize Room Codec System
- 20 student stations equipped with push-to-talk (PTT) microphones
- Wireless lavaliere microphone for instructor
- 2 HD PTZ Cameras:
  - Student camera
  - Instructor camera
- Displays:
  - Projector (for display of instructor content or far-site transmission)
  - 42” Flat Panel Display (Instructor)
  - 42” Flat Panel Display (Students)
- Content projection/transmission capabilities:
  - Instructor PC
  - Laptop
  - Elmo document camera
  - VHS or DVD (Via PC)
- Recording capabilities:
  - Via instructor computer (video card)
- Bandwidth capabilities:
  - 1 MB (minimum) to 5 MB (maximum)
- Crestron Control System
- LifeSize Room Codec
- 12 student stations
- Voice-activated ceiling microphones
- Wireless lavaliere microphone for instructor
- 2 HD PTZ Cameras:
  - Student camera
  - Instructor camera
- Displays:
  - Projector (for display of instructor content or far-site transmission)
  - LG 42” Flat Panel Display
  - 19” table top reference monitor
- Content projection/transmission capabilities:
  - Instructor PC
  - Laptop
  - Elmo Document Camera
  - VHS or DVD (Via PC)
- Recording capabilities:
  - Via instructor computer (video card)
- Bandwidth capabilities: 1 MB (minimum) to 5 MB (maximum)
- Crestron Control System
Faculty Guidelines

**Video Conference Tips**

1. **Remember your receiving audience!** Welcome them; look at them; **directly ask them questions** throughout the lecture.

2. Ask participants at receiving sites to **sit in view of camera** (they may be sitting out of sight!).

3. Ask if receiving learners can **hear/see** you and your presentation materials.

4. Encourage all learners at all sites to **speak clearly into microphones**, and when necessary, activate desktop microphones.

5. Remember, the receiving audience cannot hear questions asked by the local audience if a **microphone was not used**. Repeat questions from people in the local site into the microphone, as needed.

6. Use the **computer cursor to point to objects** on PowerPoint. Laser pointers can’t be seen at the distant sites.

7. **Speak out about any technical difficulties** during your lecture to AV technicians – they are constantly monitoring your session.

8. **Turn off cell phones, especially the instructor’s, whenever possible** - Cell phone signals have a tendency to interfere with the wireless microphone signal.

**Guidelines for Class time Success**

The challenge for any instructor delivering learning via video conference is to engage all audiences at the same time. Another challenge is to try to make all audiences feel that they are one class having the same learning experience, despite the distance between them. Consider the following recommendations for increasing the likelihood of lecture success in a broadcast environment.

**Dress for success**

Warm, solid colors are best for video conferencing (snow-white shirts make faces look pale and washed out). Avoid checkerboard, prints and striped clothing as they may interfere with contrast levels and transmission compression. Leave reflective, bulky, or noisy jewelry at home.

**Let the show begin!**

Arrive 15 minutes before scheduled class. If bringing your own laptop or using a Mac platform, arrive at least 30 minutes before your scheduled lecture time to allow for technical assistance. The more familiar with the technology you are, the less you’ll have to think about it. Be yourself. Act naturally and speak to remote participants as if they were sitting in your location. Look directly at cameras to make “eye contact” with all students!

**Introductions all around**

Acknowledge all of the sites at the beginning of your lecture. Start by outlining the structure of the lecture and
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describing how questions will be handled so the audience knows what to expect and what is expected. (Identify the lead facilitator for the session if there are several lecturers.)

Avoid annoyances
Very sensitive microphones will pick up all noise, both intentional and unintentional (e.g. shuffling papers, AC fans, trains). The podium microphones are always on, and the distant sites will hear you (up to ten feet away) even if the local learners cannot because of excessive room noise. Assume you are always on camera, even when you are not speaking. Sounds take on added importance in the videoconference environment.

- Acknowledge annoying sounds (local or distant).
- Turn on your microphone ONLY when you’re ready to lecture.
- Always assume everyone can hear everything said (but verify it once you begin your talk!).

Maximize interest
Multimedia options for graphics/text/audio include PowerPoint, document cameras (aka ELMO, the fancy overhead projector) VHS tapes, DVDs, CDs to transmit sound bites, photographs, slides, x-rays, etc. A high level of interactivity is required to keep the audiences interested. Exploit all dimensions of the videoconference medium; alternate between looking at the local audience and looking at the camera to make eye contact with the remote learners.

Keep it visible
To avoid blurred hand movement when pointing out something on a diagram, motion slowly for the benefit of the remote sites. Use the mouse or the annotation monitor as your pointer when referring to certain areas of your PowerPoint slides since the laser pointer can only be seen by the audience in front of you.

What was the question?
Encourage participants to identify themselves when asking questions. Repeating the question before answering is the single most important thing you can do to involve all audiences. When a member of one audience asks a question, try the technique of offering the other audiences the opportunity to answer the question and making sure to repeat any answers that are offered. Direct questions to individuals by name and/or location to avoid confusion.

Keep them on their toes
Divide lectures into 10-15 minute blocks and intersperse when possible with group discussion, video clips, question and answer sessions and demonstrations (live and virtual). If a conversation breaks out with local learners that lasts more than 10-15 seconds, purposely go directly back to remote learners to bring them back into the conversation.

Troubleshooting
Talk to the technician before your lecture with questions about presentation compatibility, AV needs, and video conference training. A technician will be available in the room to assist you with your lecture as necessary. Accept imperfections and have fun!
Q & A Time: The single most important thing you can do to involve audiences is to structure your question and answers sessions.

- Outline to your audience how you will handle questions.
- Protect time for questions!
- Repeat the questions asked.
- Encourage participants to identify themselves.
- Direct questions to individuals by name or by site.

Guidelines for Presentations

Here are some basic guidelines for designing presentations to be used in a videoconference environment.

Type Text Elements

- Minimum size should be 30 points for text, 60 points for headings.
- Don’t reduce font to fit it all in!
- Five- eight lines per slide and five - nine words per line.
- Crisp and clear style of fonts (san serifs) such as Arial, Verdana, Geneva.
- To emphasize a point, make important text larger, bold, or italic. Avoid using a string of upper-case letters.
- Link related slides by using the same title at the top of the slide with the word “continued” after it.
- When you have long bullet lists or tables to display, divide the chart into two parts and link them by title as above.

Color/Contrast

- Dark background, light text.
- Avoid complex, “gimmicky,” overly-detailed template designs.

Images and Video

- Pictures in presentations should be in JPEG format.
- Get copyright permission for all images.
- PowerPoint animations (i.e. sliding bullets, fancy slide transitions) are not recommended unless there is a significant learning benefit. (Animations do not always transmit smoothly over network).
- Any video clips embedded into a PowerPoint presentation also have be saved to a DVD as a separate file.

Timing

- Divide lectures into 10-15 minute blocks and intersperse with group discussion, video clips, question and answer sessions and demonstrations (live and virtual).
- During a video conference, you can only cover about two-thirds of what you usually can in a live session.
- Present approximately 20 slides per half-hour of discussion. Avoid information overload.
- Put only key points on slides/overheads and speak from them to fill in the related details.
- Use handouts for complex graphical/statistical information.
Handouts/Notes

- Copies of your presentation / handouts are particularly important to distribute prior to lectures in the rare event that video transmission goes down. A well-prepared lecture handout will allow learners at remote sites to continue to follow along with the lecture audio. If translation is involved, be sure that the translators receive the presentation/handouts two to five days prior to the video conference.
- Ensure copies of any complex, charts, tables, or lists are distributed to distance audiences in advance so they can follow the content as you discuss it.

Enhance your PowerPoint: PowerPoint is a good place to start, but have you considered including:

- Images? (not animated)
- Audio / video? (burned to DVD-R)
- Internet?
Video Conference Checklist for Instructors

Instructional Aspects:
- Determine what materials/handouts are needed.
- Decide how student assessment will take place.
- Develop a back-up plan in case technology fails to keep students busy.

Prior to conference:
- Determine arrangements in case of technical problems.
- Decide what to wear (avoid loud patterns, red, & white).
- Schedule a formal practice session with remote locations if needed.
- Know what room you will be using.
- Notify conference participants about any change in arrangements.
- Find out whom to contact if there are problems.
- Schedule a practice session or training.
- Make sure remote sites have any necessary materials.
- Develop a back-up plan in case of technical difficulties.
- Arrange for special accommodations.

Conference Day
- Arrive early.
- Prep video connection with video conference technician.
- Set up laptops, etc. if using
- Check arrangement of room.
- Test presentation(s).
- Have phone numbers for other site handy
- Begin with introductions.
- Discuss procedures to distribute and collect assignments, supplies, etc.
- Inform students of etiquette tips, protocols for speaking, muting, and any other instructions.
- Have a clock on the wall that the presenter can always see without distracting students.
- Start and end on time (follow your agenda).

Post Conference
- Provide feedback to site coordinator and technician and report any problems.

Etiquette Reminders:
- Learn the videoconferencing system before the conference.
- Avoid wearing loud patterns, red, and white and noisy jewelry.
- Repeat questions from audience.
- Maintain eye contact.
- Show interest in all participants.
- Move and gesture slowly and smoothly.
- Do not move out of camera range, people won't be able to see.

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Video Conference Checklist for Instructors, con’t.

____ Maintain enthusiasm about the technology.
____ Speak in a strong, clear voice.
____ Remind audience about the microphone (mute if necessary).
____ Make sure all sites have materials or can get them during videoconference.
____ Don’t assume remote can hear you, ask them before you start.
____ Don’t speak after the conference ends until you are sure ALL participants have disconnected.
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Technical Support and Helps

For Room Access: Campus Security 610.282.1100 x1250

For Video Conference Technical Assistance:

Media Services
610.282.1100 x1362 (Office) Monday – Friday 9am – 5pm
610.282.1100 x1579 (Office) Monday – Friday 9am – 5pm
Media Support Specialist

Video Conference Pager: 610.282.1100 x2070 reaches an emergency pager. Note: The extension for the DLC office is x2972. If using the paging service, please enter 2972 when prompted.

For Faculty and Program Support:

VC Alberta: Great site for videoconferencing with many resources. http://vcalberta.ca Click on the Educator Resources link for documents, links, tools, tips, and videos.

Distance Education and Instructional Technology Department
610.282.1100 x2290
deit@desales.edu
http://www.desales.edu/videoconferencing

References


University of British Columbia, Sauder School of Business, Robert H Lee Graduate School. http://sauder.ubc.ca/Resources/Learning_and_Technology_Services/Learning_Services/Video_Conferencing/
Glossary

**Crestron Control System** – The brains behind the DeSales classroom audio visual system. The system takes user input through a media presentation controller mounted in the podium or on the wall of a classroom to determine settings such as lighting, projector input, and volume control.

**DVD/VCR** – a combination digital video disc (DVD) player and video cassette recorder (VCR) player

**Elmo Document Camera** – a real-time image capture device for displaying an object to a large audience. They are, in essence, high-resolution web cameras, mounted on arms so as to facilitate their placement over a page. This allows a presenter to write on a sheet of paper or to display a two or three-dimensional object while the audience watches.

**Polycom Video Conferencing** – a system of equipment for holding video conferences that includes video cameras, projectors, and teleconference equipment.
System Checklist for Far Sites

What type of Video Conference Codec are you using?  
(Ex. Polycom, Tandberg, LifeSize, etc.)

Brand: __________________________  Model: __________________________

Does your Codec have High-Definition (HD) capabilities?

How many cameras are in your video conference class? ______________________

Will there be a technician present during all conferences to control cameras and address technology issues?

_____ Yes, a technician will be present  
_____ No, a technician will not be present

Do you have the ability to project any of the following? (Please check all that apply.)

_____ Local PC  
_____ Document Camera  
_____ DVD/VCR  
_____ Laptop/VGA Input

How is audio transmitted in your classroom? (Please check one.)

_____ Push-to-talk microphones on the students’ desks  
_____ Voice-activated ceiling microphones  
_____ Shared wireless microphone  
_____ Other (Please specify): ________________________________

What is the bandwidth to your video conference classroom? ______________

At what connection speed do you normally connect? ______________

Please list your video conference technician’s name and contact information:

Name: __________________________

Email: __________________________

Phone: __________________________

Please list any other information relevant to ensuring a successful Video Conference in the space below:

________________________________________________________________________