

# An introduction to videoconference teaching

Videoconferencing is used extensively throughout the University for teaching purposes. There are 9 dedicated videoconference venues spread across the Sandy Bay, Newnham and North West Centre campuses. These rooms —of either 12 or 35-seat capacity —are used exclusively for videoconferencing. In addition videoconference systems are installed in a number of lecture theatres across the Newnham and Sandy Bay campuses, allowing for large group teaching and lecturing.

Most information about videoconferencing at UTas can be found at <http://www.its.utas.edu.au/videoconf/index.htm>

Access the site for bookings, a range of 'help' sheets and booklets for staff, students and guest presenters, information on venues, and the like.

For a general introduction to videoconferencing, see the menu below.

- An overview of videoconferencing
- Why use videoconferencing?
- Applications in flexible education
- Videoconference equipment
- Add-on equipment
- Operating modes
- Getting ready for videoconference teaching

For information on arranging videoconferences see the companion 'Guide to arranging videoconferences at the University of Tasmania'.

## An overview of videoconferencing

Welcome to videoconferencing. What is videoconferencing and how can we best use it for teaching?

### What is videoconferencing?

Videoconferencing allows people in different locations to meet and share information without travelling.

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- As well as seeing and hearing each other you can:
- Display a close-up of pictures, graphs, maps, and small objects.
- Play a video tape, DVD, CD
- Display your PowerPoint presentation or other computer files
- Record your session
- Collaborate on computer data with others in the session



You can videoconference with just one other site (called point-to-point) or you can connect a number of sites together (called multipoint) – see later under ‘Operating modes’.

Vide Conferencing is widely used to conduct meetings and job interviews, deliver education and training, and generally overcome the barriers of distance.

### Where is videoconferencing?

Vide Conferencing is all around the world. There are systems in all capital cities and most regional centres throughout Australia. Many of these systems can be hired on a commercial basis.

Most educational institutions and many private organisations throughout Australia have videoconferencing facilities that you can use to connect with them but are usually not available for public hire.

All major world countries have videoconferencing systems that can be hired for your purposes. Directories of these sites are available at:

<http://www.savie.com/cgi-bin/vconf.pl>

<http://www.kn.pacbell.com/wired/vidconf/directory.html>

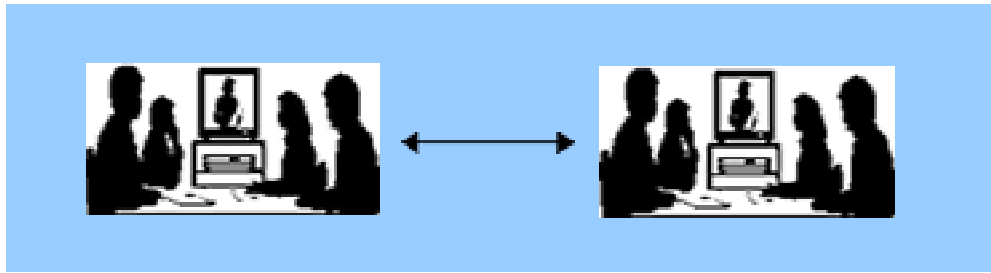
A temporary videoconference system can be set up for a special event at a location of your choosing. This does take some time to organise; so several weeks’ notice is necessary.

### How does videoconferencing work?

The high quality videoconferencing currently available uses ISDN lines or an IP connection. Pictures and sound are compressed and digitally transmitted to the other site/s.

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This process affects picture quality and you will notice that when people move about the picture looks a little 'fuzzy'. The videoconference system only replaces the parts of the picture that move, so if you are sitting relatively still, the picture will be quite clear. This doesn't mean that you need to restrict your movements so that you become stiff and stilted – just behave naturally. The trade-off for this 'fuzzy' picture is that you can connect relatively cheaply.

## Why use videoconferencing?

There are many applications and benefits of videoconferencing. It overcomes the costly, and sometimes impractical, element of travel. It won't substitute for all face-to-face meetings, but can reduce their frequency and effect savings in time, travel and accommodation costs.

### Ease of communication

Videoconferencing can be more impromptu than organising face-to-face meetings - the lack of travel means that a videoconference can occur immediately, or within a very short period of time. However, while this may increase the contact with 'remote' sites, it may leave a sense of isolation as physical contact may be reduced even further if you replace all face-to-face contact with videoconferencing.

Videoconferencing works best with small groups and where visual communication is important. For example:

- You need to show pictures, diagrams or a practical demonstration to explain a concept.
- You need to share and discuss computer information.
- It is important to see facial expressions and body language.

### Increase interaction

Probably the most important advantage of videoconferencing is the degree of interaction made possible. We have become very adept at telephone conversation and written communication, but so much more can be gained from actually seeing the person you are speaking to. The opportunities to observe body language, to

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make eye-contact (even though it is indirect), and to visually demonstrate your meaning, are invaluable. Videoconferencing allows you to do this when travelling to meet face-to-face is not feasible.

### Advantages for teaching

In a teaching scenario, you can deliver to two or more groups of students at the same time, which not only saves you time and energy, but allows the students to interact with each other and broaden the scope of the class.

You can also easily:

- ask questions and get immediate feedback
- gauge how successfully you have presented an idea by taking cues from students' body language
- have guest presenters join from other sites

Students can:

- ask questions of you and other students, and get immediate feedback
- make presentations and gauge their performance from visual and aural cues.

Videoconferencing is a medium designed for dialogue and discussion about ideas and information presented by any of the participants - staff or students.

## Applications in flexible education

There are many applications for videoconferencing in education and training. The first question you should ask yourself is, "Are colour, motion and **live interaction** required to achieve my purpose?" If the answer is "Yes!" you should proceed. If not, you should consider some other means of delivery.

### Flexibility of place

Videoconferencing is a very effective method of meeting when teachers and students cannot come together at the same place. It gives a degree of flexibility in delivery with regard to place. However, participants are still constrained by time—they must all meet at the same time.

### Videoconferencing as one of a suite of flexible delivery tools

As you will see (and you no doubt can imagine) videoconferencing is not the same as teaching in a face-to-face classroom. The characteristics and limitations of the medium, particularly in multipoint delivery, and the lack of real physical presence change the dynamics of a class. For example, videoconferencing has limitations

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when you need to work 'hands on' with students, often on an individual basis, as in workshops and labs.

As you know, teaching is more than just performing in the classroom. You interact with students outside the confines of the lecture theatre and lab, and avenues of contact between you and your students may be various, using various modes of delivery.

Videoconferencing is just ONE flexible delivery tool. No single delivery mode is best, and you should be integrating several modes into your course design. To read more on this download the PDF copy of 'Which Media - Why, When, Where, and How?' [PDF – 18kb].

You need to consider all options available to you and decide on the best delivery mix that will satisfy both you and your students, and meet your course goals. This may include a mix of:

- face-to-face teaching
- the web – online courses or web conferencing
- email
- discussion or bulletin boards
- provision of resource materials (print, audio, video)
- blogging

### Where is videoconferencing being used?

Many educational organisations teach via videoconference delivering courses in all areas covered by the curriculum.

The sites below will give you a range of information and links to other sites.

**The SBC Pacific Bell Knowledge Network Explorer Videoconferencing for Learning** Web site supports the effective and educational uses of videoconferencing technology by providing basic information about the technology and instructional applications as well as resources to help you link with other videoconferencing teachers, librarians, and content providers.

<http://www.kn.pacbell.com/wired/vidconf/>

**The Distance Education Clearinghouse** (managed and maintained by the University of Wisconsin-Extension) is a comprehensive and widely recognised Web site bringing together distance education information from Wisconsin, national, and international sources. New information and resources are being added to the Distance Education Clearinghouse on a continual basis.

<http://www.uwex.edu/disted/home.html>

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The **SAVIE Videoconferencing ATLAS** is a European initiative, which is a comprehensive information resource on the use of videoconferencing in education.

<http://www.savie.com>

The **Guide to Distributed Learning Environments** from Academic Technologies for Learning, Faculty of Extension, University of Alberta is intended to provide instructors with a structured exploration of the wealth of information available about different aspects of the design and production of distributed learning environments.

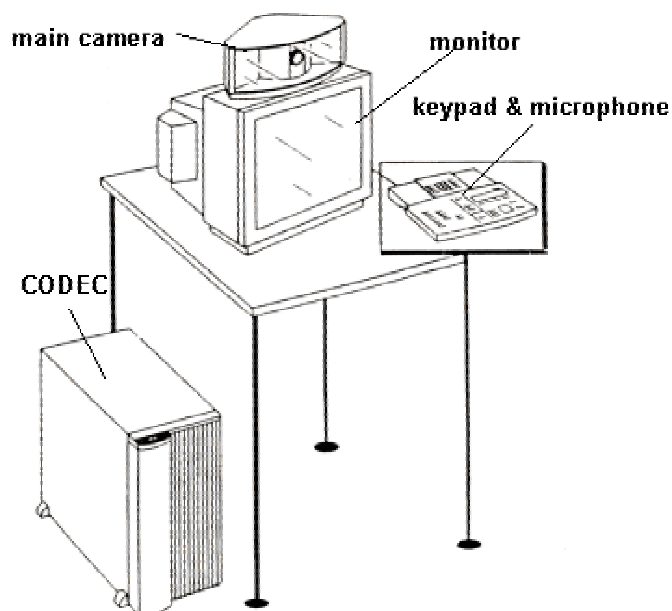
<http://www.atl.ualberta.ca/dleweb/>

The **LearnTel** site provides a number of papers on the use of videoconferencing in education and also links to useful sites.

<http://www.learntel.com.au>

## Videoconference equipment

Any videoconferencing system consists of the following major components:



## Monitor/s

The monitor is a television screen on which you can see the people at the other site/s. It can also display a small window that shows the picture you are sending to the other site/s. Some systems use two monitors - one to display the people you are talking to and the other to display still images, which may be sent from either site.



## Main camera

The main camera is usually positioned on or above the monitor. It can be controlled remotely to focus on participants and capture the images sent to other sites.

## CODEC

The CODEC is a device responsible for compressing the signal down to a size whereby it can be transmitted – usually 2, 4 or 6 channels. Each channel transmits 64 kilobits per second (Kbps):

- 2 channels = 128 Kbps
- 4 channels = 256 Kbps
- 6 channels = 384 Kbps

The more channels, the better the quality, but the higher the line costs. When you are arranging a videoconference, the other party may ask you which data rate you wish to operate at. Most systems will be set at a default rate but can automatically negotiate to operate at the incoming rate.

## Keypad/remote/tablet

The keypad (or remote or tablet) is used to operate the equipment. Included on the keypad are the call set-up buttons, video-control buttons, audio-control buttons and camera-control buttons. Keypads vary with different videoconference systems, but their basic function remains the same.



## **Microphone/s**

There will be a microphone built into the system – either built into the unit or as a stand-alone item that is placed on the table. Most table microphones are designed to pick up voices from around the room, so they are best placed in the middle, and towards the front of, the table.

Some videoconferencing systems have microphones that can track speakers and switch the camera to them. Every videoconference system has a very sophisticated echo cancelling system that allows microphone/s to work at peak performance. This will be adjusted when the system is installed - it is important NOT to vary this by adjusting the volume on your monitor.

## **Add-on equipment**

It is also possible to add other pieces of equipment (peripherals) to your videoconference system. The following are the most common.

### **Document camera**

The document camera acts as an overhead projector, blackboard or whiteboard, and can be used to display photographs, diagrams or small objects, as well as images from a computer (see below).

It can also be used by participants to demonstrate a technique or show an object they have been working with. The head of some document cameras can be swivelled to display a chart, large object etc.



### **Video cassette recorder**

Video tapes can be played into a videoconference. However, long video sessions are not appropriate and would be better sent to the participants for viewing prior to the videoconference. It is better to play only a few minutes of a video and then discuss it.

Videoconferences can also be recorded, however, you should have the permission of all involved before you do this. Recording will include any supporting materials you show eg diagrams, graphics - you may be breaking copyright by recording these.

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### Computer

The computer can be used to generate graphics or you can run a software program through the computer and into the videoconference.

**Laptop:** You can bring in your laptop and plug it into the videoconference system. The images will either be routed through the document camera (in the 12 and 35 seat venues) or displayed directly (in the lecture theatres).

### Extra microphones

These may be placed on the tabletop or near participants or may be lapel microphones for individual participants.

### Auxiliary camera

The 35 seat venues and videoconference-enabled lecture theatres have an auxiliary camera to show the participants at that site.

### Equipment that has a video output

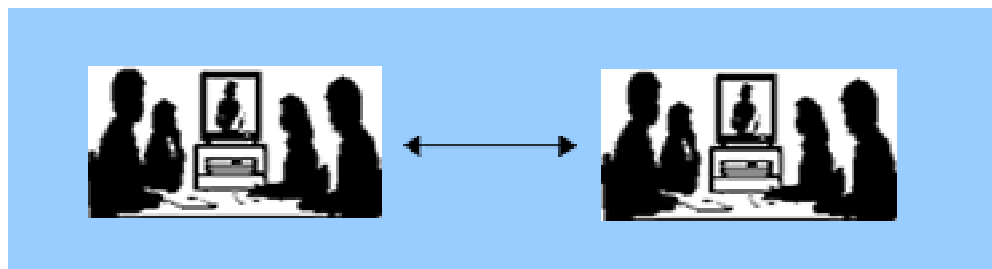
Any equipment that has a video output may be connected to the videoconference system (eg a video microscope).

## Operating modes

You can videoconference with just one other site (called point-to-point) or you can connect a number of sites together (called multipoint).

### Point-to-point

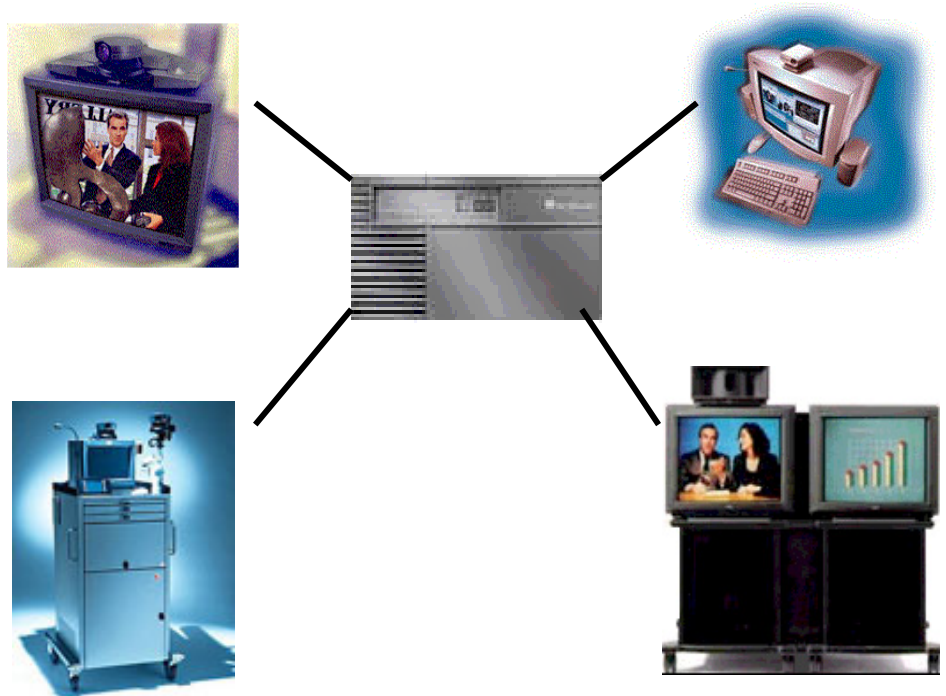
Videoconferencing between two sites is almost like being there. It is an ideal way for classes or small groups of people to meet and discuss issues. Meetings can be formal or informal because videoconferencing point-to-point is so easy to use that it won't interfere with the flow of conversation. Each of the parties 'meets' at the videoconference room and then it's as simple as a phone call. One group dials the other and the meeting or class is underway.



## Multipoint

You can connect a number of sites if you need to hold a class or meeting between many different locations. It is technically possible to connect twenty or more sites, but not practical to do so as they become difficult to manage. Multipoint meetings are usually a little more formal than point-to-point simply because of the numbers involved. The chairperson (or coordinating lecturer) controls the meeting so that all sites have an equal opportunity to speak.

A multipoint videoconference is connected through a piece of equipment called a multipoint control unit (MCU) – commonly called a ‘bridge’. The bridge can dial out to all sites or each site simply dials a central number and all parties are connected.



## Multipoint modes

There are two common modes of operation for multipoint videoconferences:

### Voice activated

In this mode of operating, any site that speaks will be automatically seen on the screen. All sites see the current speaker and the current speaker sees the previous speaker. The system will also switch to a site at any continuous sound, so it is best for all sites to mute their microphones unless speaking.

It takes around 5 seconds of continuous speech for the switching to occur, so a short comment may not activate the change

**Continuous presence**

This mode allows you to see several sites on-screen at once. The screen is usually divided into four and one site appears in each rectangle. This mode is ideal if you are meeting with four other sites with 2-3 people at each site. (If there are larger numbers, people will be indistinguishable in the quarter screen picture.)

## Getting ready for videoconference teaching

Teaching via videoconference offers exciting opportunities. It's as close as you can get to teaching face-to-face but it **IS** different. Many of the techniques you use in the classroom can be successfully used in teaching via videoconference. However, there are many other techniques, which you can use to make your videoconference session more effective.

To find out more and develop your skills in this area, enrol in the University of Tasmania's *Effective Videoconference Teaching* course.

Be aware that the University expects you to have at least a minimum of skills before taking a videoconference class. Appropriate skills development is provided through this course.

To find out when the next course is on offer, see Staff Development for the semester program. Courses can also be offered on demand for schools and faculties if there is sufficient interest.

For further information and queries contact the FEU (phone 3888, email [training@feu.utas.edu.au](mailto:training@feu.utas.edu.au))

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