Videoconferencing over the Internet

Inon Beydha Lukman, Ph.D.
Videoconferencing over the Internet has a number of potential uses:

- Videoconferencing can be used as a ‘distance learning tool’, providing a ‘virtual classroom’
- Videoconferencing can also be used as a collaborative tool, both within the same classroom, and/or between distributed classrooms, and/or individuals
• Videoconferencing over the Internet can be used as a ‘distance learning tool’, to provide students with a ‘virtual classroom’

• This could be a group of students who meet together face to face in a single location, equipped with videoconferencing facilities

• The student group could then be managed ‘locally’ by a qualified teaching assistant, while the ‘teacher’ teaches and interacts with the group ‘online’ via videoconference
• Alternatively, some or all of the students could all be distributed geographically, each one joining the virtual ‘group’ via Videoconferencing over the Internet.

• Videoconferencing used to occur mainly between special ‘room-based’ or computer-based units connected via ISDN telephone lines.

• Here is an example of the use of room-based videoconferencing equipment:
The following series of pictures show a group of students studying together over a distance, with the aid of videoconferencing technology.

A ‘local’, (Plymouth) group, and a ‘distance’ (Exmouth) group effectively managed to ‘meet up’ and study together, despite there being 50 miles separating them.
This photograph was taken in the Plymouth Babbage videoconference suite.

The ‘local’ (Plymouth) group is present here, along with the teacher.

The ‘distance’ (Exmouth) group were 50 miles away (they can be seen on the monitor in the picture).
The high quality video camera, which can be panned, tilted, and zoomed by remote control (it’s mounted on top of the television monitor in the photograph), and the pressure zone microphone (PZM) which is situated in front of the television monitor, can relay images and ambient audio to the group 50 miles away in the Exmouth videoconference suite.
The Exmouth group also had a high quality camera, PZM microphone, and television monitor, and images relayed from the Exmouth group can be seen on the Plymouth group’s monitor in the photograph.

Loudspeakers were also provided at both ends, to relay the audio from the microphones at each site.
The PowerPoint presentation shown in the photograph to the right was shown to both groups simultaneously.

The ‘distance’ (Exmouth) group viewed the presentation on their own monitor, along with a small inset picture of the Plymouth group (picture in picture).

The ‘local’ (Plymouth) group viewed the presentation on a projection screen, and could also view the responses of the Exmouth group on their own (Plymouth) monitor.
Students at both 'ends' were able to view the presentation, and interact with each other, and the teacher, through comment and discussion.
• A number of advances have been made in videoconferencing technologies. One of these being videoconferencing over the Internet using Internet Protocol (IP)

• Videoconferencing over the Internet using IP (i.e. H.323) has enabled us to use real-time data/file/application sharing

• More information can be found on the UoP Distance Learning website at: http://www2.plymouth.ac.uk/distancelearning/
• OK, so what else can we do with videoconferencing technologies (apart from presenting with PowerPoint? 
• Most room based videoconference systems have a video cassette recorder (VCR) and/or digital versatile disk (DVD) input. Video can be therefore be shown 
• Most room based videoconference systems also have a document camera input, where a document or ‘object’ can be placed under a special camera for display
• Most room based videoconference systems also have a personal computer (PC) video input (i.e. SVGA) and/or personal computer (PC) data input (i.e. USB or Firewire). Anything you can ‘do’ on a computer can therefore be ‘shown’

• PC data inputs (in combination with IP H.320 or H.323 protocols) allow application sharing, so that computers connected at each end can ‘work together’
• If we ‘move away’ from ‘room-based videoconference systems’, and consider ‘computer-based videoconferencing systems’ using H.320 or H.323 protocols (i.e. videoconferencing between computers using Microsoft NetMeeting etc), it’s possible to fully utilise the real-time data/file/application sharing potential of videoconferencing technologies
• For example, I could share an application with someone over the internet
• This could be an electronic document, or it could be a collaborative graphics or video project
• For example, I could begin to draw a picture, which you then add to, in ‘cyberspace’…
• …or, I could take control of your computer mouse, and show you how to do something on your computer
• The use of videoconferencing over the Internet doesn’t have to be limited to ‘distance learning’ contexts.

• It can also be used as a collaborative tool both within the same classroom, and between distributed classrooms

• Use within the same classroom could enable students to communicate and collaborate on projects through the computer in the same classroom
• However, students in the same classroom could collaborate on projects through the computer, whilst simultaneously communicating and collaborating with other students...

• … situated in other (distant) classrooms, and/or with other individual students distributed geographically...

• …effectively removing the ‘walls’ of the ‘traditional’ classroom
• A number of recent advances have been made in videoconferencing-over-the-Internet technologies

• Videoconferencing used to occur mainly via ‘room-based’ systems (set-top box, camera, microphone, monitor, and speakers)...

• …or via a computer (using a webcam and headset with videoconferencing software, such as “Microsoft NetMeeting” or “CUCME” etc
• However, there have been a number of recent advances in videoconferencing methods and technologies

• Goodmood WIP (by Two Four TV) is an example of this advancement. It enables students to videoconference via a standard Web Browser (such as Internet Explorer) on a standard computer equipped with a webcam and a headset.

• Goodmood, also adds a significant range of additional features and functions
The main Goodmood web browser window contains a videoconference window in one corner of the screen.

- Streamed or live video link
- Feedback comments
- Synchronised PowerPoint or similar presentation
- Files for sharing: any format
- Threaded discussion
The teacher can be seen by all the students in their own videoconference window.

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The teacher can select a particular student to view, either privately, or so that all other students can see the selected student as well…

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However, in addition to the videoconference window, Goodmood also offers a set of customisable ‘web parts’, that can be added to the main Goodmood Web Browser window:

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For example, the main Goodmood window can include another window, simultaneously containing a PowerPoint presentation, or a video clip.
... and another window containing an asynchronous or synchronous discussion, and/or a voting/polling facility

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The discussion window can simply contain text sent from the teacher to all the students, such as general instructions or feedback (one-to-many)…

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…or the messages could be pre-created, i.e. to provide a ‘guide-on-the-side’ set of study notes (one to many)…
…or the messages could be specific real-time notes, such as instructions, i.e. “Please view the PowerPoint presentation now”, or “Vote now” (one to many)…

Streamed or live video link

Synchronised PowerPoint or similar presentation

Files for sharing: any format

Threaded discussion

Feedback comments
…or the messages could be specific real-time notes from the teacher to individual students i.e. “Are you still with us?” (one to one)…
…or an individual student could send a private messages to the teacher, i.e. “I’m a bit confused” (one to one)…

Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format

Threaded discussion
In other words, the discussion window could enable the teacher to have a private (one to one) text conversation with a specific student, or a public (one to many) text conversation with ‘all’ the students.
An individual student could also send a message to all the students (if permitted) i.e. “who was it who mentioned that article on behaviour last week” (one to many)…

Streamed or live video link

Synchronised PowerPoint or similar presentation

Files for sharing: any format
Threaded discussion

Feedback comments
The discussion window can also be used in a many-to-many context (i.e. a threaded discussion).

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- Files for sharing: any format
- Threaded discussion
It can also be used for public voting/polling (many to many), or for private voting/polling (many-to-one).

Streamed or live video link

Synchronised PowerPoint or similar presentation

Files for sharing: any format

Threaded discussion

Feedback comments
...thus potentially affording a real-time, switchable, one-to-one, or one-to-many, or many-to-many interactive videoconference.
More information can be found at:
http://www.twofourdigital.com/goodmood.asp

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• What about the ‘future’...
• Well, it’s often very difficult to predict the future, but here are some ‘pointers’:
• Microsoft SharePoint – watch this space, as this is fast becoming the ‘future vision’ of an effective integration between virtual learning environments (VLEs), existing classroom technologies (computers and software applications, graphics tablets, and Interactive Whiteboards etc), and videoconferencing and media on-demand/streaming technologies
• The integration of videoconferencing technologies with 3G mobile telephony
• The integration of videoconferencing technologies with Virtual Reality (VR), and/or Haptic, and/or tele-immersion technologies – another one to ‘watch’!
• The ‘future’ is very difficult to ‘predict’
• However, even though we can’t be ‘sure’ of the future of changes, what we probably can be ‘sure’ of is the changes of future!
• Have fun