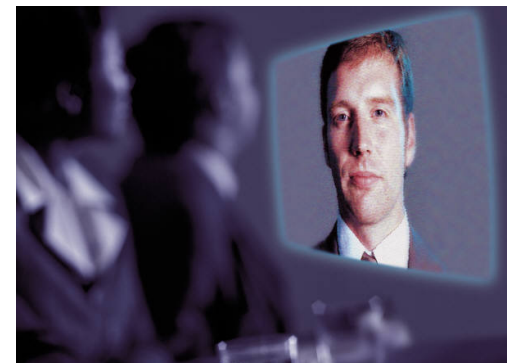





Videoconferencing over the Internet

Inon Beydha Lukman, Ph.D.



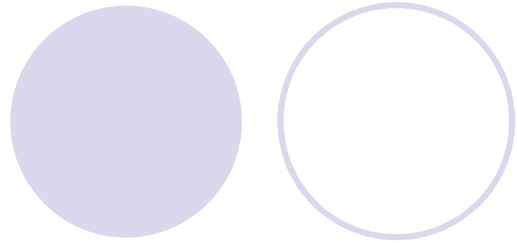
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- Videoconferencing over the Internet has a number of potential uses:
 - Videoconferencing can be used as a ‘distance learning tool’, providing a ‘virtual classroom’
 - Videoconferencing can also be used as a collaborative tool, both within the same classroom, and/or between distributed classrooms, and/or individuals

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- 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

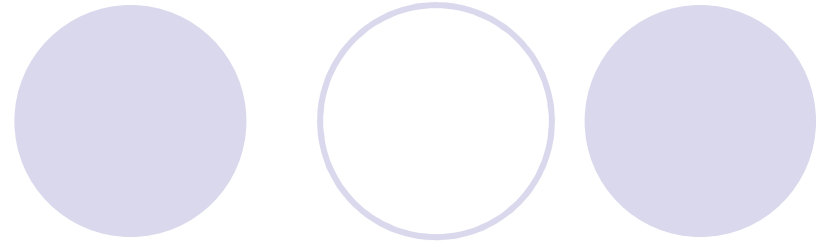
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- Alternatively, some or all of the students could all be distributed geographically, each one joining the virtual 'group' via Videoconferencing over the Internet
 - Videoconferencing used to occur mainly between special 'room-based' or computer-based 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)



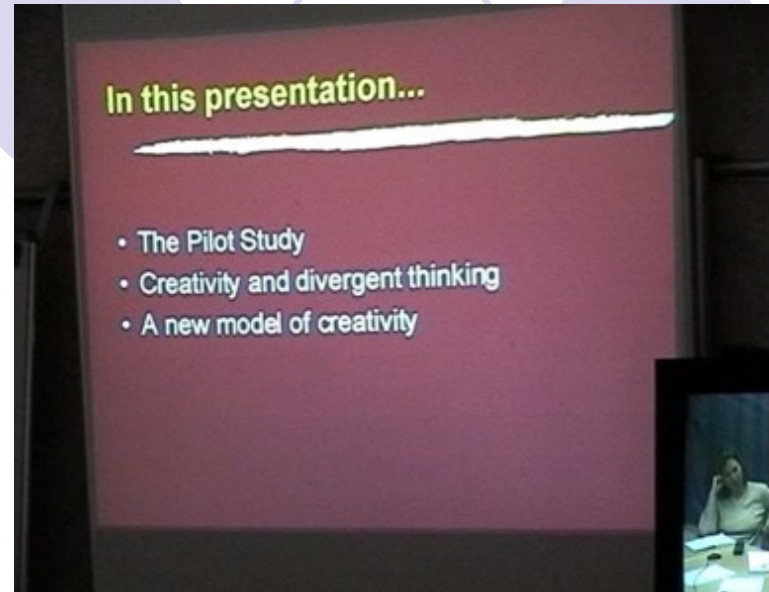
- The high quality video camera, which can be panned, tilted, and zoomed by remote control (it's mounted on top of the television monitor in the photograph), and the pressure zone microphone (PZM) which is situated in front of the television monitor, can relay images and ambient audio to the group 50 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 videoconference 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


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- 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'


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- 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

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- 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

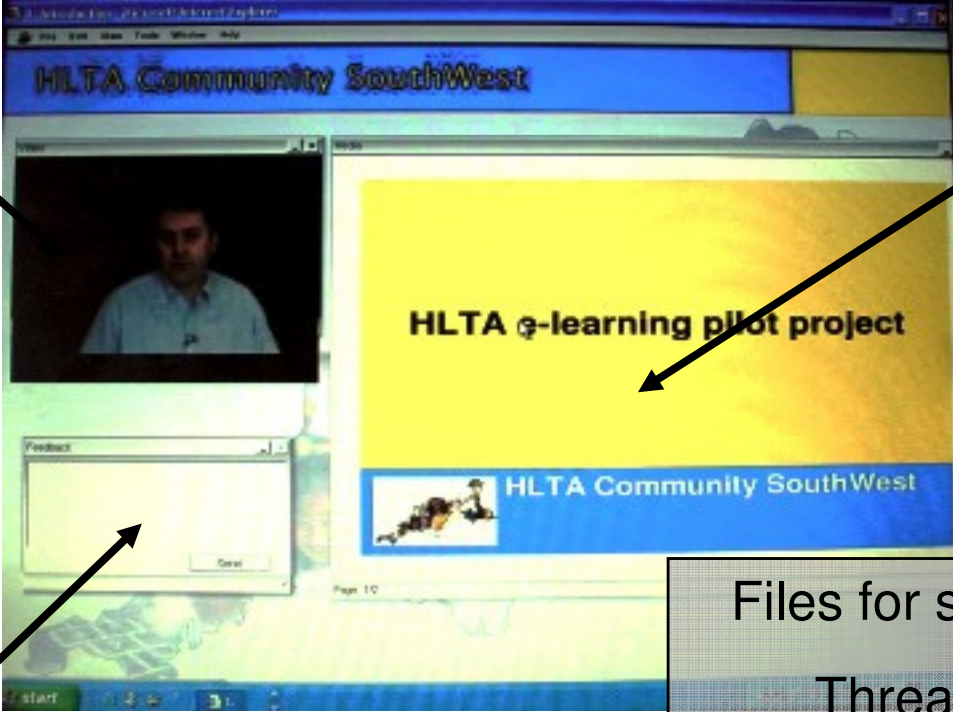
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- The use of videoconferencing over the Internet doesn't have to be limited to 'distance learning' contexts.
 - It can also be used as a collaborative tool both within the same classroom, and between distributed classrooms
 - Use within the same classroom could enable students to communicate and collaborate on projects through the computer in the same classroom

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- 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



The screenshot shows a web browser window titled "HLTA Community SouthWest". The main content area displays a videoconference window in the top-left corner showing a man speaking, and a presentation slide titled "HLTA e-learning pilot project" on a yellow background. The slide also features the "HLTA Community SouthWest" logo at the bottom. A "Feedback" text box is visible in the bottom-left corner of the browser window. The Windows taskbar is visible at the bottom of the browser window.

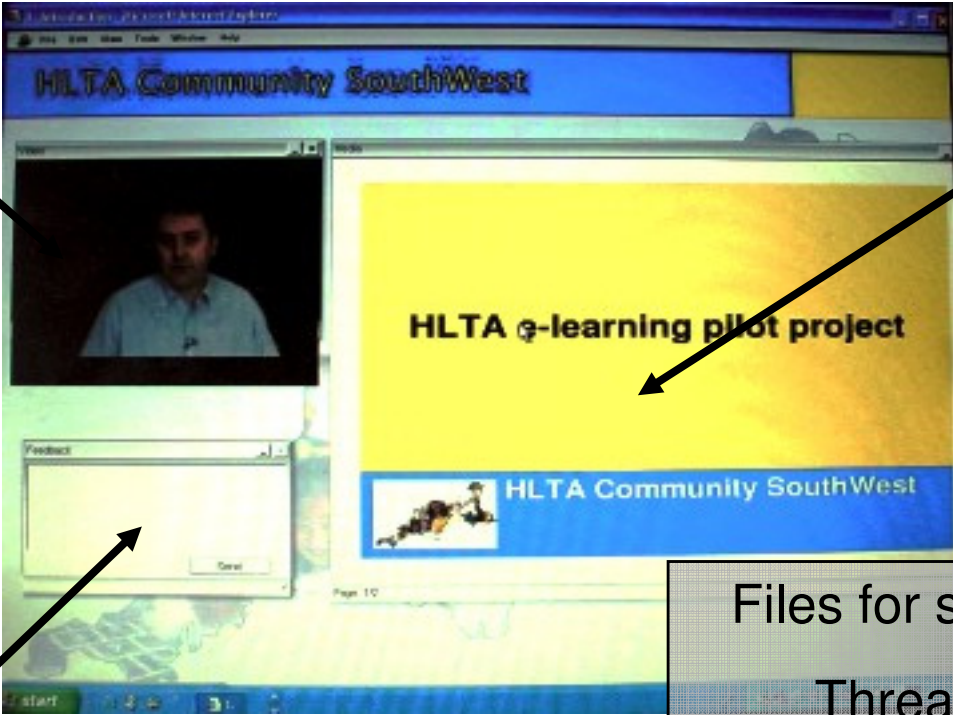
Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format
Threaded discussion

The teacher can be seen by all the students in their own videoconference window



The screenshot shows a videoconference interface. At the top, a blue banner reads "HLTA Community SouthWest". Below this, there is a video window on the left showing a man in a light blue shirt. To the right of the video is a presentation slide with a yellow background and the text "HLTA e-learning pilot project". At the bottom of the slide, there is a logo and the text "HLTA Community SouthWest". Below the video window is a "Feedback" box with a "Send" button. The Windows taskbar is visible at the bottom of the screen.

Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format
Threaded discussion

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

The screenshot shows a web browser window titled "HLTA Community SouthWest". The main content area displays a yellow slide with the text "HLTA e-learning pilot project" and a logo for "HLTA Community SouthWest" at the bottom. On the left side, there is a video feed showing a man in a light blue shirt. Below the video feed is a "Feedback" text box with a "Send" button. The interface is surrounded by four callout boxes with arrows pointing to specific features: "Streamed or live video link" points to the video feed; "Synchronised PowerPoint or similar presentation" points to the yellow slide; "Files for sharing: any format" and "Threaded discussion" point to the bottom area of the interface; and "Feedback comments" points to the feedback text box.

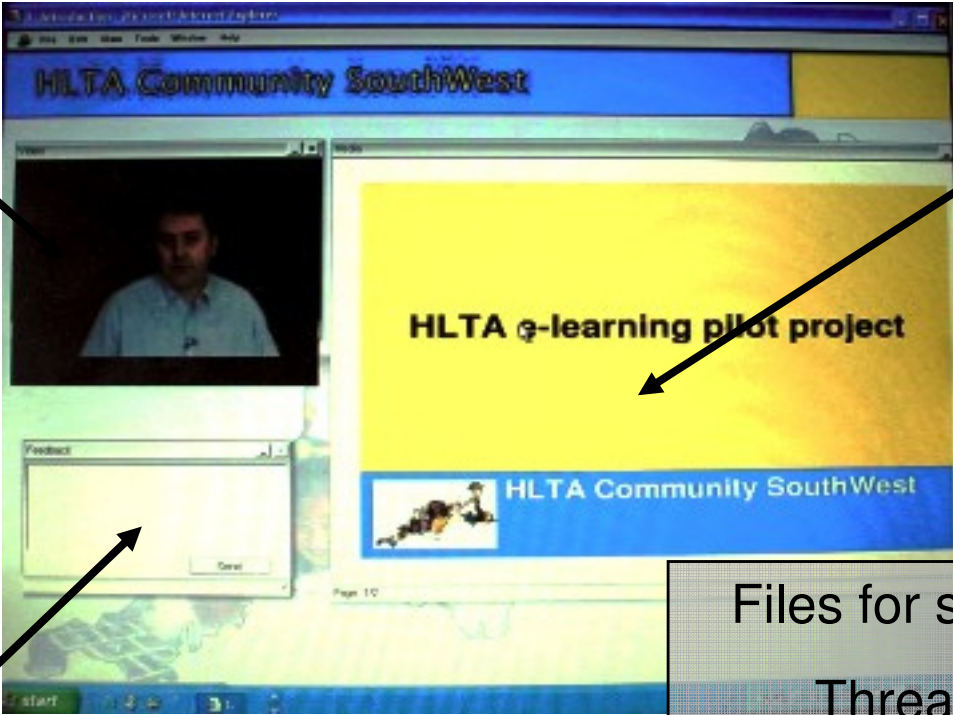
Streamed or live video link

Synchronised PowerPoint or similar presentation

Files for sharing: any format
Threaded discussion

Feedback comments

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:



The screenshot shows a web browser window titled "HLTA Community SouthWest". It features a video conference window on the left showing a man speaking. To the right is a presentation slide titled "HLTA e-learning pilot project" with the "HLTA Community SouthWest" logo at the bottom. Below the video window is a "Feedback" form. At the bottom right, there is a section for "Files for sharing: any format" and "Threaded discussion".

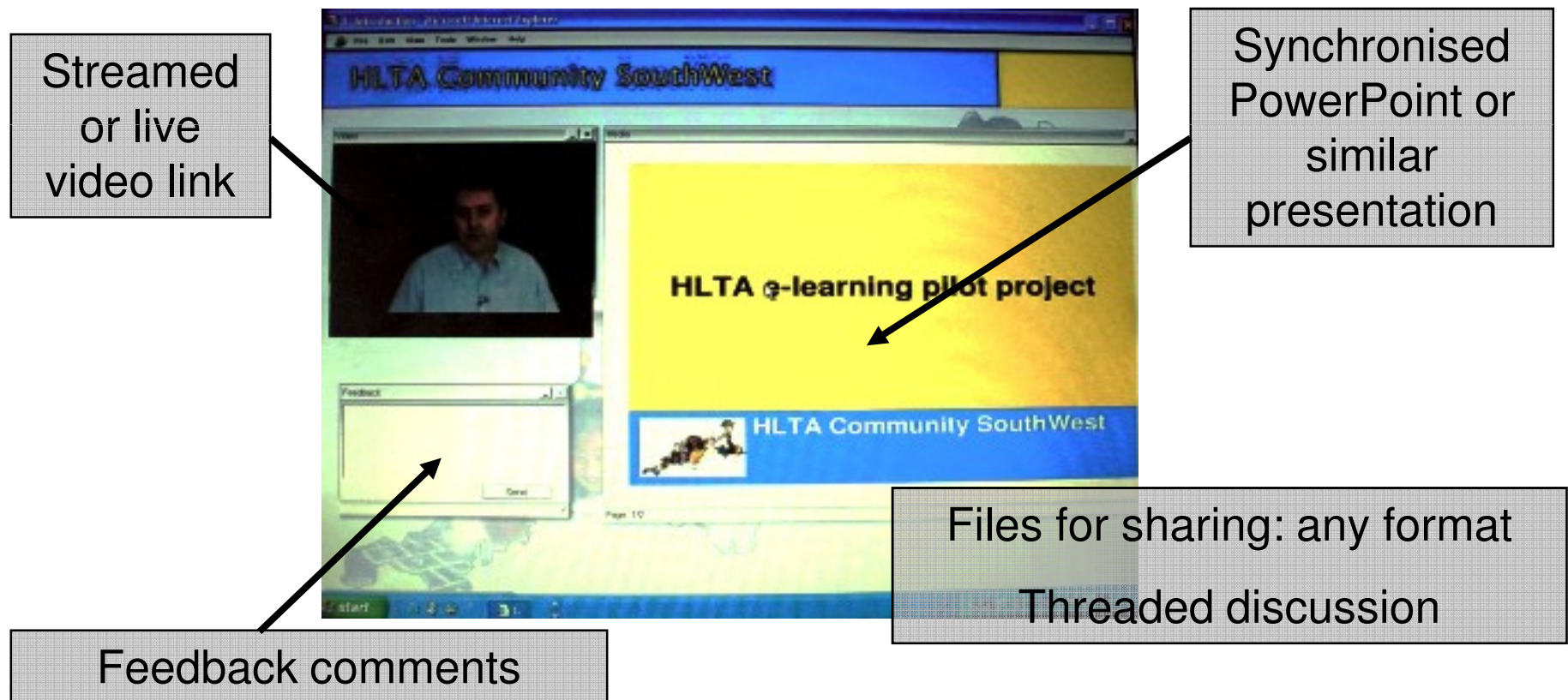
Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format
Threaded discussion

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

The screenshot shows a web browser window titled "HLTA Community SouthWest". The main content area displays a yellow slide with the text "HLTA e-learning pilot project" and the HLTA logo at the bottom. A video window in the top-left corner shows a man speaking. A "Feedback" form is visible in the bottom-left corner. The interface is annotated with four callout boxes:

- Streamed or live video link**: Points to the video window.
- Synchronised PowerPoint or similar presentation**: Points to the main slide content.
- Feedback comments**: Points to the feedback form.
- Files for sharing: any format
Threaded discussion**: Points to the bottom section of the interface.

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

The screenshot shows a web browser window titled "HLTA Community SouthWest". The main content area displays a yellow slide with the text "HLTA e-learning pilot project" and a logo for "HLTA Community SouthWest" at the bottom. A video feed in the top left corner shows a man speaking. Below the video is a "Feedback" text box with a "Send" button. The interface is annotated with four callout boxes: "Streamed or live video link" points to the video feed; "Synchronised PowerPoint or similar presentation" points to the yellow slide; "Files for sharing: any format" and "Threaded discussion" point to the bottom of the slide area; and "Feedback comments" points to the feedback text box.

Streamed or live video link

Synchronised PowerPoint or similar presentation

Files for sharing: any format
Threaded discussion

Feedback comments

...or the messages could be pre-created, i.e. to provide a 'guide-on-the-side' set of study notes (one to many)..

The image shows a screenshot of a web-based e-learning interface. The main content area displays a yellow slide titled "HLTA e-learning pilot project" with the "HLTA Community SouthWest" logo at the bottom. A video window in the top-left corner shows a man speaking. Below the video is a "Feedback" text box. A navigation bar at the top and bottom of the slide area also displays "HLTA Community SouthWest".

Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format
Threaded discussion

...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)...

The image shows a screenshot of a web-based interface for the HLTA Community SouthWest. The interface includes a video feed of a man, a presentation slide titled "HLTA e-learning pilot project", a feedback form, and a threaded discussion area. Callout boxes with arrows point to these features:

- Streamed or live video link**: Points to the video feed.
- Synchronised PowerPoint or similar presentation**: Points to the presentation slide.
- Feedback comments**: Points to the feedback form.
- Files for sharing: any format**
Threaded discussion: Points to the bottom section of the interface.

...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)...

The image shows a screenshot of a web-based interface for the HLTA Community SouthWest e-learning pilot project. The interface includes a video feed of a man, a presentation slide titled "HLTA e-learning pilot project", a feedback box, and a threaded discussion area. Four callout boxes with arrows point to these features:

- Streamed or live video link**: Points to the video feed of the man.
- Synchronised PowerPoint or similar presentation**: Points to the presentation slide.
- Feedback comments**: Points to the feedback box.
- Files for sharing: any format
Threaded discussion**: Points to the discussion area.

...or an individual student could send a private messages to the teacher, i.e. "I'm a bit confused" (one to one)...

The image shows a screenshot of a web-based learning environment. At the top, a blue banner reads "HLTA Community SouthWest". Below this, a video window on the left shows a man speaking. To the right of the video is a large yellow area with the text "HLTA e-learning pilot project" and a small logo at the bottom. Below the video is a "Feedback" text box. At the bottom of the screen, a blue banner also reads "HLTA Community SouthWest".

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

The image shows a screenshot of a web-based interface for the HLTA Community SouthWest e-learning pilot project. The interface includes a video window on the left showing a man speaking, a central presentation slide titled 'HLTA e-learning pilot project', a feedback text box at the bottom left, and a threaded discussion area at the bottom right. Four callout boxes with arrows point to these features: 'Streamed or live video link' points to the video window; 'Synchronised PowerPoint or similar presentation' points to the central slide; 'Feedback comments' points to the feedback text box; and 'Files for sharing: any format Threaded discussion' points to the bottom right area.

Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format
Threaded discussion

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)...

The image shows a screenshot of a web-based learning environment. At the top, a blue banner reads "HLTA Community SouthWest". Below this, there is a video window on the left showing a man speaking, and a large yellow presentation slide on the right with the text "HLTA e-learning pilot project". At the bottom of the presentation slide, there is a logo and the text "HLTA Community SouthWest". In the bottom left corner, there is a "Feedback" text box with a "Send" button. The Windows taskbar is visible at the very bottom of the screenshot.

Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format
Threaded discussion

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

The screenshot shows a web browser window titled "HLTA Community SouthWest". The main content area displays a yellow slide with the text "HLTA e-learning pilot project" and a logo for "HLTA Community SouthWest" at the bottom. A video window in the top-left corner shows a man speaking. Below the video is a "Feedback" form with a "Send" button. The Windows taskbar at the bottom shows the "start" button and system tray icons.

Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

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)

The screenshot shows a web browser window titled "HLTA Community SouthWest". The main content area displays a yellow slide with the text "HLTA e-learning pilot project" and a logo for "HLTA Community SouthWest" at the bottom. A video feed in the top left shows a man speaking. A feedback box is visible in the bottom left, and a file sharing area is in the bottom right.

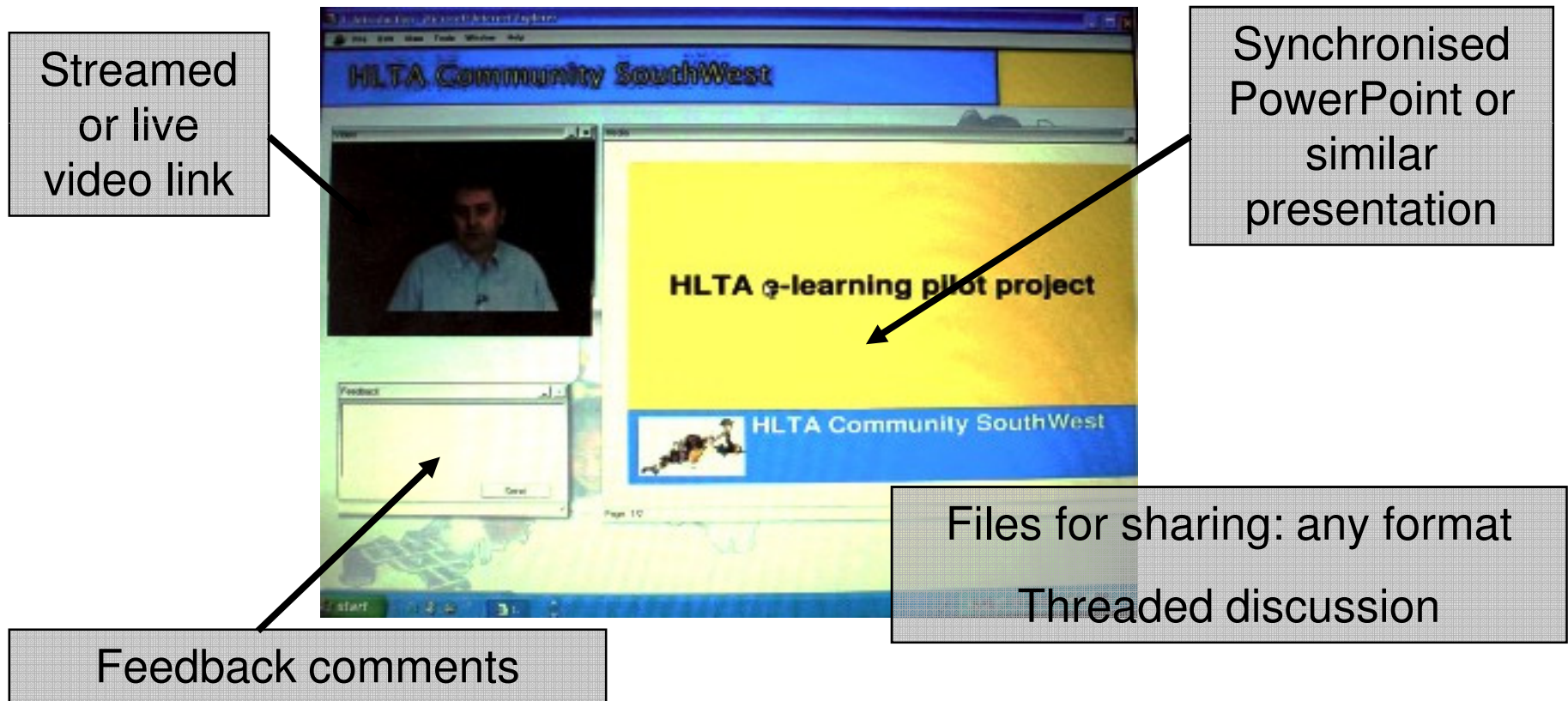
Streamed or live video link

Synchronised PowerPoint or similar presentation

Feedback comments

Files for sharing: any format
Threaded discussion

...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>

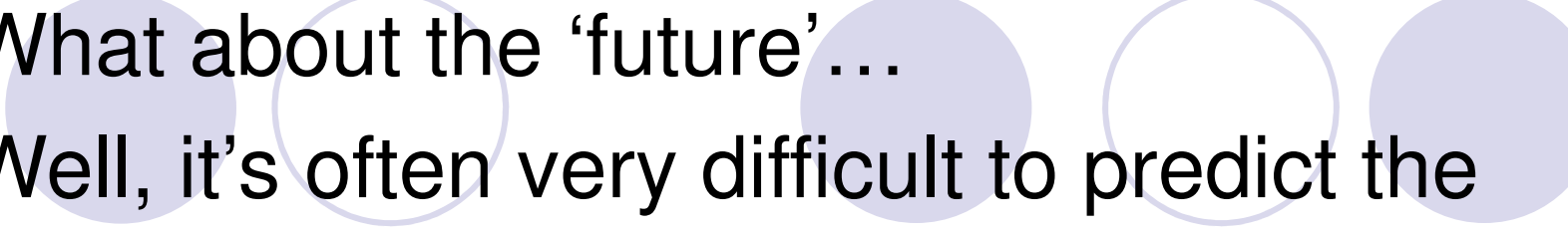
The image shows a screenshot of a web browser displaying the 'HLTA Community SouthWest' website. The main content area features a yellow background with the text 'HLTA e-learning pilot project' and a small logo at the bottom. A video player on the left shows a man speaking. Below the video is a 'Feedback' form. The browser's address bar shows the URL 'http://www.twofourdigital.com/goodmood.asp'. Four callout boxes with arrows point to specific features: 'Streamed or live video link' points to the video player; 'Synchronised PowerPoint or similar presentation' points to the main content area; 'Files for sharing: any format' and 'Threaded discussion' point to the bottom of the page; and 'Feedback comments' points to the feedback form.

Streamed or live video link

Synchronised PowerPoint or similar presentation

Files for sharing: any format
Threaded discussion

Feedback comments

- 
- Four decorative circles are positioned at the top of the slide. From left to right: a solid light purple circle, a hollow light purple circle, another solid light purple circle, and a final solid light purple circle.
- 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