The use of digital video in the office and classroom is increasing. Speeches given by corporate officers are recorded and stored on the Web so workers can access them on demand. Meetings and presentations are recorded and placed on Web sites for later reference. Rather than requiring workers to attend training classes at specific locations and times, companies are now recording training materials and letting users access the information as needed. Digital video is also becoming common in real-time applications such as distance learning. Students can view classroom video online while interacting with the instructor through text chat windows.

This new type of video suggests new paradigms for user interaction. For real-time video, conventions and protocols must be established between users so that the communication is effective. For example, the lecturer in a distance learning situation must adapt his instruction style to deal with questions from students that arrive electronically in a text window. The paper from the Collaborative and Multimedia Group at Microsoft Research discusses this type of interaction.

When given the option of accessing recorded video on demand, research has shown that users rarely watch the video in its entirety. Rather, they skip around in the video to find the parts they are interested in, and watch only briefly. An often requested feature is a video summary, somewhat analogous to a movie trailer, that gives an overall impression of the video in a short period of time. The papers from the IBM Almaden Research Cue-Video Project and from the Xerox PARC VidSum project both discuss techniques for video summarization.

The use from Microsoft Research entitled “Evolving Use of a System for Education at a Distance” discusses how the use of a multimedia system for distance learning evolves over time. With the system, remote users can hear and see the lecturer through real-time video while viewing the presentation material in a separate window. In addition, there is a window where remote participants can type in questions for the lecturer, and another window where participants can chat among themselves. Although these capabilities exist in a physical classroom, it is quite different when used remotely on a computer. This paper discusses how the pattern of usage of this system changed over time, and how students and lecturers adapted to the technology.

The paper from Xerox PARC, entitled “A Design Pattern-based Video Summarization Technique: Moving from Low-level Signals to High-level Structure”, describes a top-down technique for creating video summaries. Here, a structure for the video is assumed, for example a recorded seminar. Since it is known that the video will consist of an introduction and a series of slides, it is possible to do a feature analysis to find these events in the video. Once the events are found, they can be used to construct a highly accurate summary.

The papers discussed in these papers lead the way to a new era in communication, where users are not forced to be in the same place at the same time to achieve the advantages of sight and sound. In the future, use of video for training purposes will explode, given the tools to automatically index such media. Further, remote education will gain popularity with increasing familiarity with such computer interfaces.