



TeleEducation — It's Not Your Father's Distance Learning Technology

BY MICHAEL BRANDOFINO

Higher education is serious business these days. Colleges and universities struggle to control costs and compete for students and tuition dollars. Faced with increased demand to expand curriculums while keeping tuition at affordable rates, they are expanding outside the brick and mortar of their campus using "virtual" classrooms. "The advent of high definition video communications coupled with the flexibility of a dedicated IP-based network now allows content organizations to affordably produce and deliver higher quality content that is supported by more robust visual media."

It's a cold Saturday morning in upstate New York, and a student prepares for class. But his class is being held in Chicago and his trek to school doesn't involve snow boots, it involves booting up his laptop and dialing into class using a video conferencing application and webcam. From grade school to colleges and universities around the world, video communications is becoming commonplace.

Originally, use of video was a fairly primitive tool used to enable teachers to address remote classrooms, usually over a closed network similar to cable TV. Advances in video technology and collaboration tools, however, have expanded the options and applications in which video communications can be used in education. These advances have also become a valuable asset for educators desperately trying to deal with growing costs and increasing competition to attract students and faculty from around the world.

As the story goes, video communications was introduced at the 1964 Worlds Fair, where the "Technology of the Future" was showcased. In the late 1960s, ads appeared from companies like Western Electric showing video phones and predicting we would all have them in our homes soon. Reality is, while these early stabs at video communications were interesting, they were not commercially viable. In the late 1980s, a company by the name of PictureTel spearheaded a new breed of commercially viable videoconferencing equipment. While initially costly (ranging from \$60,000 to \$100,000 each), these video devices were capable of being rolled from office to office, or, in the case of education applications, from classroom to classroom. In addition to their portability, these new systems were able to use ISDN (integrated switched digital network) services from the major phone companies and, for the first time, call out to other video systems. Their video quality was acceptable (although limited to 128 kps), but these early ISDN services were plagued with performance and outage issues. Regardless, the technology was available for educators to provide limited single remote teacher or remote specialist applications.

The late nineties saw new innovations with the introduction of smaller, cheaper and higher quality video devices. Entrance into the video device space by additional manufacturers meant lower prices and more choices, forcing these companies to begin developing education packages that bundled video equipment, overhead projectors, and even integrated podiums to differentiate their offerings and address the specific needs of educators. Video quality improved somewhat as the ISDN network services stabilized, and by combining multiple ISDN circuits, video call quality could be increased by using higher amounts of bandwidth. However, the drawback with ISDN remained high cost and poor reliability: ISDN lines were essentially digital phone lines which incurred local and long distance charges; this model of the more you use it, the more it costs, posed a problem for schools on limited budgets.

Nevertheless, video communications was here to stay and its uses expanded to include classroom to classroom interaction and multiple sites connected at the same time (multipoint conferences), creating virtual education teams. In addition, as use of videoconferencing increased in the corporate world, companies began using their video conference rooms for training and continuing education programs.

The advent of IP (Internet Protocol) networks and devices at the turn of the 21st century, however, ushered in a new era of video communications. Video quality improved dramatically with new video compression and camera technology. The introduction of IP networks capable of supporting two-way video broke down the major barriers to adoption: cost, reliability and quality. IP video-focused service providers emerged, providing low-cost, unlimited usage models that allowed educators to open the way for expanded utilization of video collaboration as part of their offerings.

Today, from kindergarten to graduate schools, students and teachers can take advantage of this technology in creative and unique ways. Students can participate in virtual field trips, from speaking with astronauts in NASA, to speaking with other children half a world away. Medical students can watch a live operation being performed by world-renowned specialist without leaving their classroom. Injured children forced to convalesce at home can remain immersed in their classrooms – even raising their hand to ask or answer questions from their teacher.

Moreover, a new form of education termed "distance edutainment" has emerged which combines education with entertainment to create a fun environment where children are more apt to get involved and pay attention: "Grossology LIVE," produced by video integrations company IDSolutions and funded by the National Science Foundation, uses imaginary characters and outrageous songs to teach children the "gross" stuff about the human body over HD (High Definition) video conferencing.

"The advent of high definition video communications coupled with the flexibility of a dedicated IP-based network now allows content organizations to affordably produce and deliver higher quality content that is supported by more robust visual media," Timothy Barshinger, director of Educational Programming for IDSolutions. "Creativity-rich 'distance edutainment' programming like Grossology LIVE will become commonplace throughout education as content organizations recognize the potential of the technology for engaging both children and adults."

Higher education, however, is serious business these days. Colleges and universities struggle to control costs and compete for students and tuition dollars. Faced with increased demand to expand curriculums while keeping tuition at affordable rates, they are expanding outside the brick and mortar of their campus using "virtual" classrooms. Combining high quality IP-based video conferencing with web-based collaboration tools, educators are creating unique programs that are global in nature: the professor can be in one city, classrooms can be at multiple campuses, and international students can dial in from home or from remote affiliate colleges overseas. The experience is fully interactive: students can view presentations perfectly, and ask questions to their hearts' content – just as if they were actually sitting in the classroom.

Thanks to the advances described above, we have reached a point where the distance learning experience is so natural, and so easy, that the technology creating it virtually melts away – giving teachers and students the opportunity to just concentrate on the lesson. And that's the real magic.

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