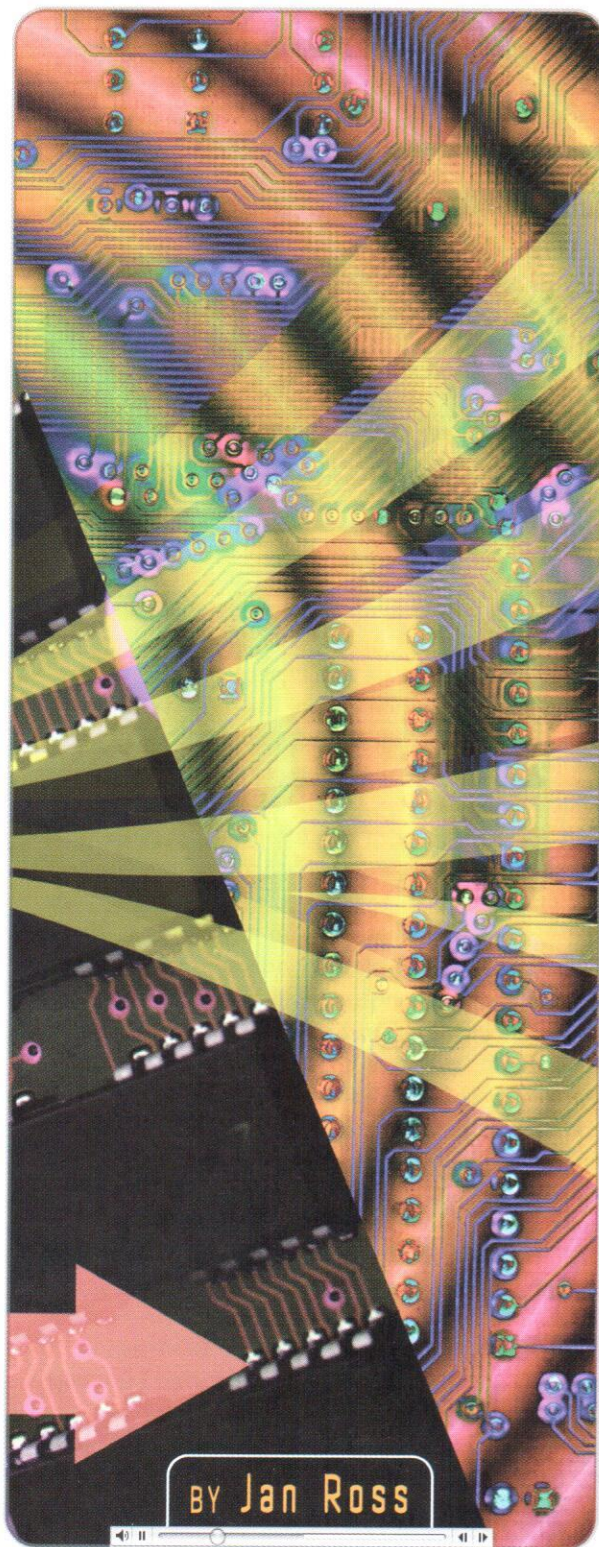


STREAMING VIDEO:

Why to Do It, How to Do It, and Where to Get It



YOU are so frustrated. A big portion of your library media center budget is spent on audiovisual materials every year. You want to switch to DVDs, but most of your classrooms still contain VCRs. The videos in your collection are becoming outdated and worn out. Many no longer correlate with the curriculum, which was revised a few years ago. And you realize that when you have switched everything to DVD, a medium that will fit in the palm of your hand will be the norm.

A teacher came to you yesterday wanting to collaborate on a research project about African animals. She would like the students to see a movie about an African animal so they can compare and contrast a book and electronic media, but each student is studying a different animal. Another teacher is trying to differentiate her instruction for a small group of students who are struggling to learn to read. They need to have the story read to them, but she doesn't have enough minutes in the day to make this happen. She also has a group of gifted students who are bored and need to be challenged with a real-world project. As in all the classrooms in the school, she has students who learn in a variety of modalities and many who need strong audio and video instruction.

A STREAMLINED SOLUTION

Your solution to all these problems may very well be video streaming—the process of viewing video over the Internet. A streamed file is downloaded and viewed at the same time, but leaves behind no files on the viewer's computer. The video player buffer stores the information while the user views the program. Video streaming normally means availability of the video on demand, but it can also refer to a video broadcast in real time such as a news event. This might also be called “Web-casting” or “multi-casting.” Users (with permission) can also download videos or video clips, save them, and use them in a variety of ways. The clips could be placed in multimedia presentations or Web sites, used for classroom presentations, or made available to individual students or small groups of students.

The use of video streaming in education is exciting and multifaceted. Research has shown that the use of video content leads to more attentive, more knowledgeable, and higher-achieving students. In an experiment using video streaming within several classes in Virginia, students in a control group who were exposed to video streaming made higher academic gains than those who were not exposed to it. The use of video

streaming also leads to better prepared and, consequently, more effective teachers. More important, video streaming changes the nature of the classroom in ways that facilitate learning, according to Ron Reed ("Streaming Technology: An Effective Tool for E-learning Experiences." *National Association of Media and Technology Centers' Bulletin*, 1–3, August, 2001).

There are many advantages to using video streaming instead of videos or DVDs. Video streaming requires minimal computer memory and the required plug-ins (QuickTime, Windows Media Player, etc.) are all free. It is an opportunity to provide a school with a substantial video collection for a minimal cost per video, as compared to purchasing the same videos. Teachers and students can access the videos whenever and wherever they want, even at home. Teachers can easily preview videos, and a student who missed the lesson could view the video at home while sick! Video streaming addresses a variety of intelligences and can supplement instruction for at-risk or gifted students equally well. And because videos online are constantly replaced and updated, teachers have access to current information.

Of course, as with all technology, there are drawbacks. Bandwidth differs greatly and can hinder the amount of data transmittable in a given amount of time. Compared to the amount of video material available, there is a small amount of streaming video cleared for digital rights, and there is a need for more content that meets educational guidelines. And there is always the problem that each teacher's motivation, abilities, and time constraints will limit the amount of use.

PROOF IN A PILOT PROGRAM

In the fall of 2002, Dixie Elementary Magnet School, a medium-sized school of about 600 students in Lexington, Ky., was chosen, along with several other schools in Fayette County, for a pilot program to implement video streaming in instruction. The video streaming would be offered through unitedstreaming (<http://www.unitedstreaming.com>). This company is a digital video-on-demand service from Discovery Education offering more than 4,000 videos and 40,000 video clips that can be viewed directly over the Internet or downloaded and saved. The saved videos can be kept and used as long as the license with the company is

maintained. The videos are all standards-based and correlated with the core content and curriculums for many different states, including Kentucky. As the library media specialist and local technology guru, I was chosen to be the unitedstreaming representative and attended a training session to learn how to effectively use the Web page to access and stream videos.

I was excited about the many possibilities offered by this alternate mode of instruction for students and teachers. I immediately linked the unitedstreaming Web site to our school Web site and entered all the teachers' names so they would have access. I was not naïve enough to think that all the teachers would immediately begin using the site, but I had high hopes that, with training and encouragement, at least some would make time in their busy schedules for this exciting new teaching tool. The principal and I scheduled a short training session during a weekly faculty meeting, and I began to spend time looking through all the offerings on the Web site to determine which videos would correlate best with our instruction and what I might offer to students during their library instruction class.

I began by trying to stream the videos for instruction but soon realized that with the fluctuating bandwidth available to a public school, this was not the most effective way to deliver instruction. The videos would start and stop, freeze up, and generally cause frustration for me and the students. So, I began to try burning them to discs and downloading them to our network. Because of cost and ease of use, I found downloading the videos to be the best solution. I could easily link to them from a computer in the library media center and share the videos with a class through a computer/television connection. I was linking a Web site to our school site one day when I began wondering if it was possible to create a link to the videos on the network. Of course, it was not only possible, but became the easiest and best way to organize the downloaded videos for ease of use in instruction. I simply downloaded the videos to our school server, then created links on Web pages to the video files. I even created Web pages specifically for the video links, such as one on children's literature, which linked to many of the children's books on video available from unitedstreaming.



In an **experiment** using video streaming with several classes within Virginia, students in a **control group** who were exposed to video streaming made higher **academic gains** than those who were not exposed to it.

FLEXIBILITY AND ENRICHMENT

The other teachers were also discovering uses for this innovative new technology:

- The guidance counselor designed a unit of safety and was able to stream current videos for the students on this topic.
- One special education teacher working on social skills with a small group was able to share video clips with them, without disturbing the rest of the class.
- An individual student in a reading group viewed the video for their book selection at an individual computer at his own pace and his understanding and interest grew. He could stop and restart the video as needed and by using headphones, did not disrupt the class or disturb other students.

Teachers were able to customize assignments for students with special needs. The older students in fourth and fifth grade were introduced directly to the unitedstreaming site and encouraged to search for videos to add to their research bibliographies. Teachers could now bring real-world examples easily into their classrooms. A unit on disasters was enhanced with video clips of earthquakes, tsunamis, and volcanoes. Students and teachers were excited about this innovative use of technology. As they became more confident about accessing the videos in a variety of ways, video streaming in the classrooms became the norm throughout the school.

The second year of the project, a license for unitedstreaming was purchased by the district so that all schools could access the Web site and the thousands of videos available for use. This past school year, 2004–2005, was the third year the schools in Fayette County used this video streaming source.

There have been no official studies or research done on the impact this service has had on our student achievement, but as the library media specialist, I see the students and teachers accessing videos on demand in all the different areas of the school. I see teachers sharing content-rich videos with small groups and whole classes on demand at the point of need. I see students taking notes for a research project as they view a video on an individual computer as the rest of the class works on an unrelated lesson. I hear students ask to use the computer so they can watch a video about a book, then ask me for more books by that author. I don't need studies to show that the teachers and students at my school have benefited from this wonderful source of information. All I have to do is take a walk around the school.

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STREAMING VIDEO WEB SITES

In addition to the unitedstreaming service from Discovery Education (<http://www.unitedstreaming.com>), here are some more sources for streaming video:

<http://www.curriculumresourcebank.com>

From TVOntario/Curriculum Resource Bank, "a searchable online database of 100-plus hours of curriculum resources. ... In addition to streaming and downloading over 650 full-length videos, users can access more than 20,000 video and print learning objects that have been segmented to break down the programs into short learning modules."

<http://www.brainpop.com/>

From BrainPOP, standards-based animated educational movies for grades K–8. "BrainPOP produces educational animated movies for grades K–12 to explain concepts in a voice and visual style that is accessible and entertaining to both children and adults."

<http://www.epnet.com/school/hshistory.asp>

EBSCO Publishing's History Reference Center includes more than 80 hours of historical film and video, on top of its "58,000 historical documents; 43,000 biographies of historical figures; and more than 12,000 historical photos and maps."

<http://search.aol.com/aolcom/videohome>

New AOL Web service that searches for 15,000 online videos.

<http://video.google.com/>

Google video search capability, currently in beta stage.

<http://marcussharpe.com/vidstream.htm>

Marcus' Live Streaming Video Cams Web site: Lists and descriptions of Webcams with streaming video mounted all over the world, including the Webmaster's backyard.

<http://www.spielbergfilmarchive.org.il/kv/index.html>

The Steven Spielberg Jewish film archive

<http://www.atlanticvideo.com/clients/ccom/>

Catholic Communication Campaign

<http://www.cnn.com/video/>

CNN top news stories available through video streaming

<http://www.pbs.org/wgbh/pages/frontline/view/>

PBS Frontline programs

http://www.ripbs.org/Education/video_streaming.html

Rhode Island video streaming project

<http://www.petatv.com/>

Animal rights television

