Internet-based Audio and Video (IAV): A New Resource for Extension, Teaching, and Research

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The integration of digital video and web pages has become increasingly popular in the past 3 years due to the availability of high-speed Internet connections, improvement of streaming technology, development of user-friendly equipment and software for production and editing, and free video hosting services. Internet-based audio and video (IAV) is a powerful tool for mass and specialized communication because content can be easily produced and distributed through multiple venues: websites, emails, and text messages. This rapid form of visual communication offers the possibility of a new resource for extension, teaching, and research at the university level.

TECHNOLOGY. During the 1990s the Internet was considered slow, as many users dialed into Internet service providers (ISP) using telephone modems. Slow download speeds greatly impeded the ability of the majority of Internet users to view audio and video content through their computers. After the millennium, the availability of high-speed Internet connections at an affordable cost became common, allowing subscribers to download content at much faster rates. Concurrently, large cable television and telephone companies switched to digital formats, which has permitted more flexibility in quality and recording of content. This across-the-board switch to digital has improved delivery of audio and video content at every level from television to Internet.

The improvement of audio and video streaming technology in combination with the availability of high-speed Internet connections over the last 3 years has allowed websites to offer high quality, television-like content. Streaming media is video or audio transmitted over a network that users can begin to play immediately instead of waiting for the entire file to download. “Typically a few seconds of data is sent ahead and buffered in case of network transmission delays. (Although some data is buffered to the hard drive, it is written to temporary storage and is gone once viewing is complete.) RealMedia, QuickTime and Windows Media (Fig. 1) are the most common streaming formats.” (http://media.ucsc.edu/glossary.html)

The development of user-friendly equipment and software for production and editing has enabled nearly anyone to produce audio and video content to be displayed through the Internet. Simple, tapeless digital recording equipment like consumer-grade digital video cameras and mobile phone cameras (Fig. 2) can offer affordable solutions to creating audio and video content for viewing over the Internet.

Video editing software that is easy to use is often bundled with the purchase of a digital video camera (Fig. 3). These software products are usually learning editions (LE) that will allow a user to experiment with basic video editing features (a full version must be purchased). Entry-level video editing software like Sony Vegas (PC) and iMovie (Apple) are inexpensive ($100–200) and feature-rich, each offering options for Internet-based audio and video output.
In 2005 the search engine Google launched the video service Google Video (Fig. 4) that allows registered users to upload videos of any length for free to its servers. This popular service has provided a venue for Internet-based audio and video that is safe and reliable. In 2006 Google Video launched eight international versions and integrated an easier system of adding videos to personal websites, blogs and MySpace.

“Founded in February 2005, YouTube (Fig. 4) is the leader in online video, and the premier destination to watch and share original videos worldwide through a Web experience. YouTube allows people to easily upload and share video clips on www. YouTube.com and across the Internet through websites, mobile devices, blogs, and email. People can see firsthand accounts of current events, find videos about their hobbies and interests, and discover the quirky and unusual. As more people capture special moments on video, YouTube is empowering them to become the broadcasters of tomorrow. In November 2006, within a year of its launch, YouTube was purchased by Google Inc. in one of the most talked-about acquisitions to date. YouTube has struck numerous partnership deals with content providers such as CBS, BBC, Universal Music Group, Sony Music Group, Warner Music Group, NBA, The Sundance Channel and many more.” (YouTube.com)

Internet-based audio and video is a powerful tool for mass and specialized communication because content can be easily produced, and distributed through multiple venues: websites, emails, and text messages. This rapid form of visual communication offers the possibility of a new resource for extension, teaching, and research at the university level. An extension agent could use a common device such as a mobile phone that has the capability to record, send, and receive IAV clips to later communicate findings while in the field (Fig. 5). The use of IAV for enhancement of course material, lectures, labs, classroom activities, and field trips can have long-term benefits for future offerings of a particular course and the conversion of a course to distance education format (Fig. 6). A protocol for a research experiment can benefit from IAV because a specialized technique can be documented and readily shared and/or published to a scientific website for others to review.

The use of Internet-based audio and video has great potential to expand the ability to visually communicate extension, teaching, and research materials without constraints by borders or schedules. Internet-based audio and video can be viewed across the world at any time and relies on how users incorporate IAV technologies into their everyday lives.

TREC Fruitscapes (http://fruitscapes.blogspot.com/) is an example of the potential uses of internet-based audio and video.