Web-Based Video in Education: Possibilities and Pitfalls

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Abstract: In recent years, Web-based video-sharing sites such as YouTube have emerged and filled so quickly with video clips that millions of short video segments are now available online. Through these sites both amateur and professional video content covering a wide array of topics has been uploaded for free distribution to the general public. The presence of so much video on the Internet is intriguing due to the potential value as a content repository that may be tapped into for educational purposes. The value of video as a visual representation can be used advantageously to show faraway places, historic film segments, animals in the wild, digital stories, and more. A drawback for educators is that the purpose of most video-sharing sites is not primarily educational. Because of this a great deal of video content currently available is not suitable for traditional educational needs. Access to some video-sharing sites such as YouTube is blocked at many schools due to the presence of inappropriate content. The challenge is to identify usable video resources and instructional strategies that are enhanced with online video. This paper illustrates how online video can be effectively used in online discussions, video case analysis, virtual field trips, and WebQuests.

Introduction

Web-based video is defined as video that is accessed via the Internet and may be downloaded to a user's computer or viewed through a Web browser. In recent years millions of video clips have become available online. The video search site called *Blinx* (http://www.blinkx.com) contains a statement on its home page declaring "Over 18 million hours of video. Search it all." One of the reasons behind the explosive growth in Web-based video content is due to the emergence of free and easy to use video-sharing sites. There are plenty of these available at the present time. A list of nearly forty has been posted on *Wikipedia*. (See: http://en.wikipedia.org/wiki/List_of_video_sharing_websites) Most of the sites in the list provide content covering an array of topics of interest to the general public such as news, sports, comedy, and music. A few of the video-sharing sites have been established to host video on specialized topics such as religion or pornography. Clearly, some video-sharing sites are unlikely to contain video of value to most educators. A list of sites containing video content that has at least some educational value is currently being generated on the *Web-Based Video in Education* blog at: http://web-based-video.blogspot.com. Many, but not all, of the sites on this blog lead to video-sharing sites where the general public may contribute content. The remaining videos are professionally produced and do not provided a mechanism for amateur content to be uploaded.

Of all of the video sharing sites currently available, YouTube (http://www.youtube.com) is the most widely used. An article in USA Today (2006) states that 100 million YouTube videos are watched each day. YouTube, which was founded in 2005, has enjoyed considerable growth in a short amount of time. Web traffic statistics supplied by Nielsen//NetRatings (2006) indicate that the number of visits to YouTube increased substantially from January through June of 2006 outpacing its competitors as the fastest growing video-sharing site. Of all the users visiting YouTube, young adults between the ages of 18 and 29 are the most frequent consumers according to a report provided by the *Pew Internet & American Life Project* (Madden, 2007). The report further states that 57% of all Internet users, regardless of age, have watched and often shared online video using a variety of sites including YouTube and others. News and comedy top the list of video selections chosen by adults when viewing online.

The emergence of multiple online video-sharing sites coupled with the rapid growth of video content is compelling from an educational perspective. Never before has such an enormous selection of freely available video content been available in searchable collections found on the Internet. An examination of the both the possibilities and the pitfalls of Web-based video for educational use is critical in order to take maximum advantage of this vast resource.

The Possibilities and Pitfalls of Web-Based Video

Video includes a series of moving pictures that may be played silently or in combination with an audio track. Video has the capacity to record and represent scenes from the real world. Through video students in either virtual or face-to-face classrooms can watch a jellyfish swim in its natural habitat or view historical footage of John Fitzgerald Kennedy making a speech in 1960. Screenshots from two YouTube videos are shown in Figure 1.

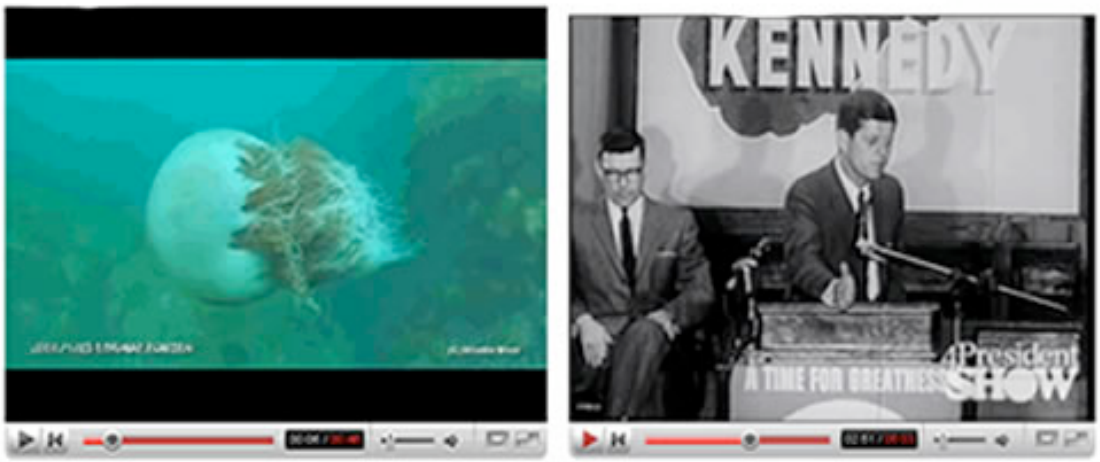

Figure 1. Screenshots of Jellyfish and Kennedy Historical Videos

The representational aspects of moving pictures and films have long been lauded as possessing educational value. Thomas Edison stated, “The moving object on the screen, the closest approximation to reality, is almost the same as bringing that object itself before the child or taking the child to that object” ("Edison on educationals," 1919, p. 47). Edison, one of the first to produce educational films, predicted that moving pictures would eventually take the place of textbooks in schools and colleges (Saettler, 2004). Edison’s hope for widespread production and

distribution of educational film has not been fully realized. The present capability to locate and retrieve video through the Internet could potentially solve the distribution problem. However, the extent to which this occurs remains to be seen.

Content quality is an important issue to consider when selecting Web-based video content. Online video subscription services, such as *Discovery Education Streaming* (http://streaming.discoveryeducation.com/index.cfm), provide high quality content that is appropriate for educational viewing. By contrast, free video-sharing sites contain video of variable quality that has been uploaded by both amateurs and professionals. Video content may be inappropriate, poor quality, inaccurate, or hard to find for specific needs. The presence of adult language and inappropriate content on sites such as YouTube has led to the implementation of blocks to prevent access at many schools. Without Internet access it is difficult to take advantage of the good video content available on a blocked site. At the present time few of the video-sharing sites provide an easy way to download the videos so that they can be carried into a classroom on a portable device. Although some products have been created for the purpose of downloading videos from YouTube, this practice may violate the terms of service (See: http://www.youtube.com/t/terms).

The access problem is less of an issue for those who teach adult students in college or university courses that are taught either partially (hybrid course) or completely online. In these types of courses the students are more likely to have home access to the Internet. Many online video sites provide links or embed code that can be used to share videos. The embed code can be pasted into a Web page, online discussion board, or blog to make it appear as if the video is part of the page as shown in Figure 2. In actuality, the video streams from the hosting server.

Figure2. HTML Embed Code Pasted into a Blog Post

The educational potential of online video, including content found on free video-sharing sites, does exist. Like any other form of educational technology, the instructional value is largely dependent on how it is used. Karppinen (2005) argued that online and digital video can be integrated to promote meaningful learning, which was described as being: a) active, b) constructive and individual, c) collaborative and conversational, d) contextual, e) guided, and f)

emotionally involving and motivating. One or more of these six characteristics may be found in a meaningful video-enhanced learning situation. An applied example is an online discussion using a video to provide context as shown in Figure 3. The video clip contains a news story describing how students use video cameras on their cell phones to record their teachers in an unflattering way and then post those videos on the Internet. The news video describing the problem was used as part of an online discussion in a graduate-level course. The HTML embed code, supplied by the host site, was pasted into the discussion board of a course management system. A discussion prompt was added to introduce the discussion. Students watched the video and replied to the post to collaborate in discussion that was contextualized with the video. This provided an easy way to discuss important current events related to the course content. It was collaborative, conversational, contextual, and emotionally involving for the students, many of which teach in public schools.

Figure 3. Screenshot of Video in Online Discussion Post

Koumi (2006) has described three primary functions that exploit video to add:1) cognitive value, 2) experiential value, and 3) nurturing value to instruction. These functions have been mapped to existing online video clips from sites such as YouTube (Snelson, 2008). Cognitive value may be added through strategies such as animated diagrams to show processes, use of real world examples, or demonstration of skills by experts. The experiential value of videos is illustrated through clips that capture real-world events that are unusual, dangerous, or involve interactions among people or animals that may be difficult to reproduce. The nurturing value of videos is introduced through the impact on motivation or attitudes. Motivation has been linked to attention variables (Choi & Johnson, 2005) and has also been woven into an integrated model of multimedia learning (Astleitner & Wiesner, 2004).

The experiential value described by Kuomi (2006) suggests a role for video used in vicarious learning situations such as in a virtual field trip. The *Virtual Italy* field trip was designed to integrate multimedia resources, including YouTube videos, to provide learners with a vicarious exploration of several Italian cities. A screenshot is shown in Figure 4 followed by the URL to the site.

Figure 4. Virtual Field Trip Example Using Web-Based Video
URL: http://edtech.boisestate.edu/snelsonc/internet_educators/virtualtour/naples.html

The WebQuest model (Dodge, 1997) has been suggested as an appropriate strategy for YouTube video integration (Tamim, Shaikh, & Bethel, 2007). The WebQuest is an inquiry-oriented model that integrates information sources from the Internet. YouTube, and other video sites, provide an ample supply of video clips that may enhance a WebQuest. Online video provides context and video cases useful for background information on a topic. Mayer (2003) describes a case as "…a description of a realistic problem scenario that is relevant to a particular profession or field of study" (p. 319). Given the large quantity of news and personal stories found online, it is evident that videocases may be woven into WebQuests to provide a context and problem scenario. An example of this is a WebQuest on blogger rights shown in Figure 5. The problem to be investigated in this WebQuest centers on the free speech issues introduced with blogging. Video clips of news stories provide some of the background information for the WebQuest.

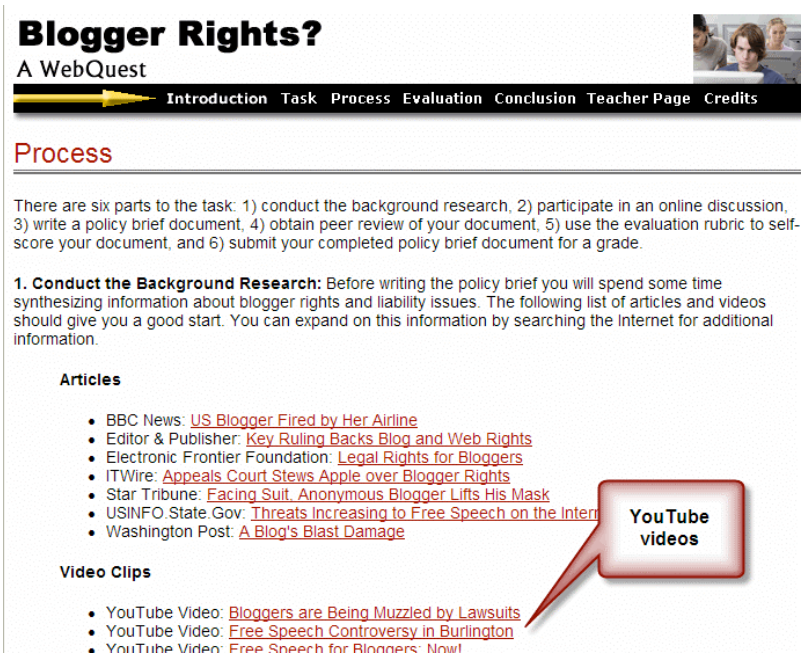

Figure 5. WebQuest Example with YouTube Videos
URL: http://edtech.boisestate.edu/snelsonc/internet_educators/webquest/process.html

Conclusions

Millions of short video clips have become available online in recent years due in part to the emergence of free video-sharing sites on the Internet. The 2008 Horizon Report (New Media Consortium & Educause Learning Initiative, 2008) lists grassroots video, recorded by everyday users, as an emerging technology that shows promise of widespread adoption among educational institutions in the near future. This is largely due to the low cost of video production and distribution as described in the Horizon Report:

> Rather than investing in expensive infrastructure, universities are beginning to turn to services like YouTube and iTunes U to host their video content for them. As a result, students—whether on campus or across the globe—have access to an unprecedented and growing range of educational video content from small segments on specific topics to full lectures, all available online. Hosting services like YouTube and iTunes U even provide institutional "channels" where content can be collected and branded. (see section 7, para 6)

The adoption of online video services by universities illuminates the shift in how these services have been used. Video-sharing technologies, originally created for entertainment and amateur purposes, are quickly gaining popularity in academic arenas. Video-sharing sites designed specifically for academic purposes have already been designed and implemented. Among these are SciVee (http://www.scivee.tv/) for scientific research and BigThink (http://www.bigthink.com/) where experts share philosophical ideas in video clip format.

The rise of video-sharing technologies has opened new possibilities for education. While video has long been used in education, there has never before been such a massive quantity of short video clips delivered through the Web. The need for research designed to investigate this rapidly evolving phenomenon is apparent. This research could include evaluation studies to explore content quality. Case studies involving instructional design and classroom implementation of Web-based video would be helpful to gain practical insight into the potential value or pitfalls within authentic learning environments. Research such as this has the potential to provide valuable information for practitioners and scholars who video-enhanced instruction.

References

Astleitner, H., & Wiesner, C. (2004). An integrated model of multimedia learning and motivation. *Journal of Educational Multimedia and Hypermedia, 13*(1), 3-21.

Choi, H. J., & Johnson, S. D. (2005). The effect of context-based video instruction on learning and motivation in online courses. *The American Journal of Distance Education, 19*(4), 215-227.

Dodge, B. (1997). Some thoughts about WebQuests. Retrieved December 30, 2007, from http://webquest.sdsu.edu/about_webquests.html Edison on educationals. (1919, February, 9). *New York Times,* p. 47

Karppinen, P. (2005). Meaningful learning with digital and online videos: Theoretical perspectives. *AACE Journal, 13*(3), 233-250.

Koumi, J. (2006). *Designing video and multimedia for open and flexible learning*. New York: Routledge.

Madden, M. (2007). *Online video*. Washington, D.C.: Pew Internet & American Life Project, Retrieved from http://www.pewinternet.org/PPF/r/219/report_display.asp.

Mayer, R. E. (2003). *Learning and instruction*. Upper Saddle River, NJ: Merrill Prentice Hall.

The New Media Consortium & Educause Learning Initiative (2008). The horizon report 2008. Retrieved March 31, 2008, from http://wp.nmc.org/horizon2008/

Nielsen//NetRatings. (2006). YouTube U.S. Web traffic grows 75 percent week over week, according to Nielsen//NetRatings. Retrieved December 28, 2007, from http://www.nielsen-netratings.com/pr/pr_060721_2.pdf

Saettler, P. (2004). *The evolution of American educational technology*. Greenwich, CT: Information Age Publishing.

Snelson, C. (2008). YouTube and beyond: Integrating Web-based video into online education. *Proceedings of the Society for Information Technology & Teacher Education International Conference*, Chesapeake, VA: AACE, 2008(1), 732-737.

Tamim, R., Shaikh, K., & Bethel, E. (2007). EDyoutube: Why not? In G. Richards (Ed.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2007* (pp. 1302-1307). Chesapeake, VA: AACE.

USA Today. (2006, July). YouTube serves up 100 million videos a day. Retrieved December 28, 2007, from http://www.usatoday.com/tech/news/2006-07-16-youtube-views_x.htm