

Digital Video Goes to School



*By Helen Hoffenberg
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Subject: Digital video

Audience: Teachers, technology coordinators, library/media specialists, and teacher educators

Grade Level: 5–12 (Ages 10–18)

Technology: Camcorder, video editing software

Standards: *NETS-S 3; NETS-T I–III, V* (www.iste.org/standards)

A video may be the ideal format for the culminating product of a project-based learning experience.

For a long while, camcorders and analog video presentations have found their way into school projects. Frequently, student multimedia projects have been captured onto analog videotape and sent home with children so that these projects can be shared with parents or other at-home caretakers. Digital video has brought a new step into that process. Video editing and student control of the final video production has not been an easy task in the past. Today's digital camcorders and computers that allow student control of the editing process have brought a whole new look to what happens when video is brought into classrooms. This article focuses on those new abilities.

The use of digital video is a powerful way to motivate students, energize teaching, and link to community. In their article on the theoretic rationale of electronic visualization, Topper (n.d.) writes that "traditional educational material is prominently textual, and though language is an essential tool for learning, the old adage 'a picture is worth a thousand words' can be expressive of the power of computer-generated visual images in the classroom."

In simple terms, the use of digital video is exploding in the educational environment. This generation of K–12 students lives in a visual world. As we all see and experience in schools and in our homes, young people are absorbed in television and other visual media, and it is from these resources that they learn a great deal. It is natural that our students embrace the use of video in the learning environment. Students find video motivational and, more important, they demonstrate higher-level thinking skills when producing digital video clips.

Equipment and financial obstacles can no longer be used as reasons for limiting student opportunities to explore, expand, and even create big ideas about their learning. Any school that has a computer capable of video editing (which includes most modern Macintosh and Windows systems) a camera capable of capturing video footage, and a teacher willing to give it a try, can begin.

As teachers we need to remember that the ability to create and use video provides one more tool to expand the learning environment. It is most important to assess when this is the best tool for the learners involved. Unless this competency is being taught in a specific computer or technology class, educators must aim for curriculum-driven technology use, not technology-driven curriculum. It is easy to become excited about this motivational and empowering technology. It is important, as with all technology tools, to use it in appropriate ways to expand the learning environment.

Classroom Projects

What are the situations where video adds a powerful element to the learning experience? As children work in this medium, they begin to see the relationship between the images they use and the message they want their projects to convey. In the process of creating a video, students are practicing many skills, including:

- the technical skills involved in making and editing a video
- visual literacy skills
- the higher-level thinking skills of analyzing and synthesizing the information they want to present as they come up with a point or focus for

their work and as they decide what details to include in their videos

A video may be the ideal format for the culminating product of a project-based learning experience. Formats for a video as the final reporting of a project—whether a project-based learning experience or a traditional research project—include:

- video newscasts
- documentaries
- infomercials
- video clips for a Web page or multimedia presentation

What curriculum characteristics make sense for video? Video is a natural fit when you want to capture:

- emotion
- heritage or culture (the story and the storyteller)
- memorable experiences
- change over time
- a process
- a phenomenon in nature
- a process slowed to view frame by frame to better understand it

Sample Projects

A variety of existing samples provide models for teachers who have not yet moved in this direction but welcome ideas from others as they prepare to take a step. (*Editor's note:* Find URLs for sites mentioned in the article in the Resources section.)

Each spring, the Monarch butterfly migrates through Mesquite, Texas, on its way north for the summer months. Many schools in the Mesquite School District collect the Monarch eggs and watch them go through the four stages of metamorphosis. They create digital movies that show how Monarch butterflies grow from egg to butterfly. A

simple click on a picture dramatically illustrates this phenomenon in nature. An example of the necessary planning to produce a well-designed project can also be found at the site. Inspiration software is the tool used for this purpose (Figure 1).

At San Fernando High School in Los Angeles, California, social studies teacher Marco Torres shows his students how to create video to bring power and emotion to their immigration projects. Many of Torres's students are immigrants or the children of immigrants. For each phase of the project, students are required to research the immigration process and create a list of questions for each interview to use as they interview family members and other elders from within the community. As one part of the planning process, they develop interview questions ahead of time, such as "Where are you from? What was life like there? What did you do there?" Torres instructed students to keep their audience in mind

as they developed their questions, asking, "What will a person watching this movie want to know?" Students gathered material, old family photos, maps, and documents, which made the project relevant and personal.

Some other "Cool Examples" can be seen on the Web at a site with the same title, funded by North Central Regional Educational Laboratory (NCREL) and the National Center for Supercomputing Applications (NCSA) through grants from the National Science Foundation (NSF). The intent is to encourage the use of video in inquiry-based learning throughout education. Two projects developed in Mahomet, Illinois, include "A Cyber Body Tour," which allows exploration of human anatomy and physiology, and "A Cyber Sports Tour," which uses sports to demonstrate the principles of physics. Another project at this site is "Cyber Mummy," which uses artifacts housed at the World Heritage Museum at the University of Illinois in Urbana

and modern imaging technology to study the culture and history of ancient Egypt.

As in Marco Torres's case, it is the work of creative teachers who make things happen. Heidi Kay, Jill Hoffman, and Marlene Rosecrans (Enders-Salk Elementary School, Schaumburg, Illinois) use portfolio assessment in art, which also gives students a way to share their work with the community. "The Wonderful World of Visual Arts" includes QuickTime Virtual Reality (QTVR) Object movies of the clay pieces students had created. The students had taken the pictures using a Sony Mavica digital camera, and used Cannon Photo Gold's Spin Photo Objects to create the Object movies on their PCs.

One of the most interesting projects using video comes out of MERlin's (Multimedia Ethnographic Research Lab) Global Forest Project, which looks at a Canadian Rainforest on the west coast of British Columbia. Rikki

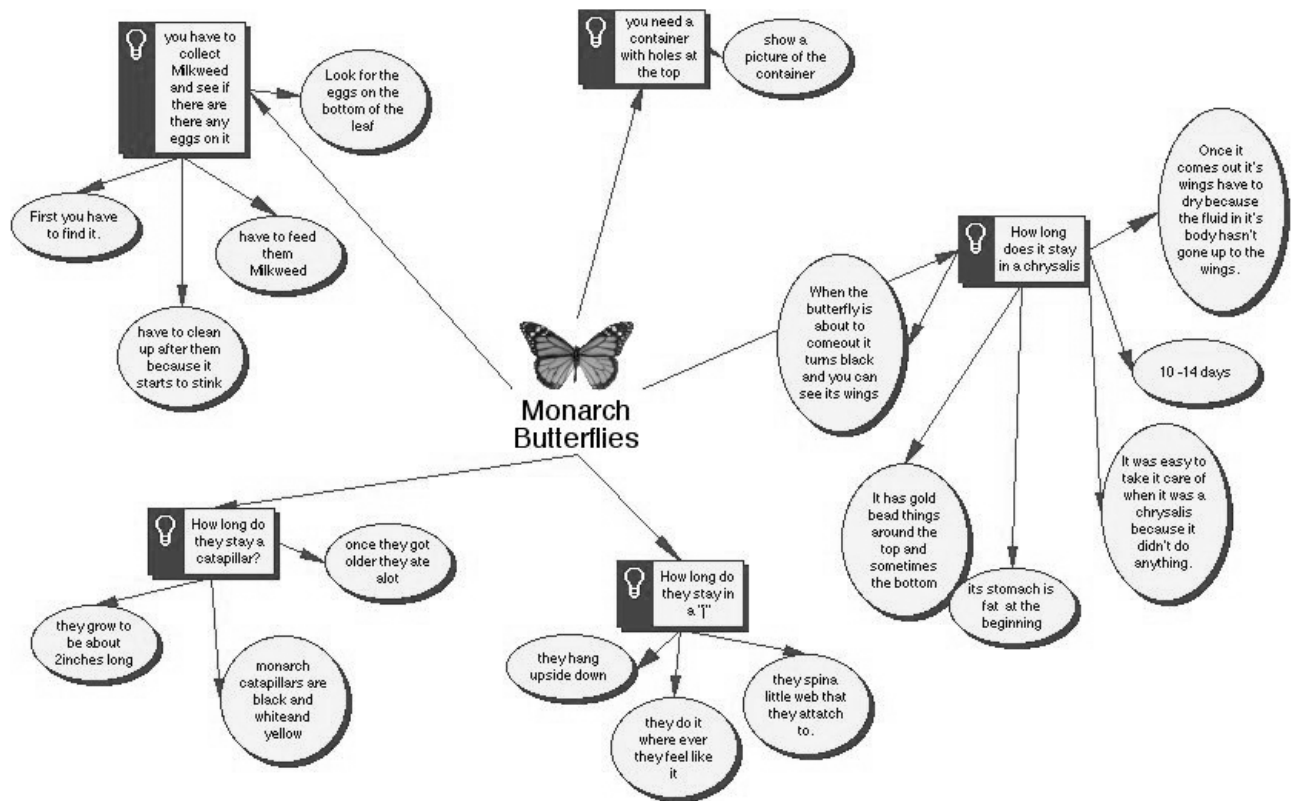


Figure 1. Concept map of the Monarch butterfly project.

Goldman-Segall of the University of British Columbia heads the project. In it, children were asked to use the videos taken as a data source and think about what they could do with the data. Although they were using analog tapes, this project demonstrates that the students are still captivated with the technology and not yet with all the power it brings to the learning environment. Goldman-Segall (1998) writes:

Most interesting to me was that young people analyzed their video data from interviews and field trips. They were given copies of the videotapes to take home and watch on their VCRs. We asked them to select a few minutes that best conveyed the topic they were focusing on. For example, if they were concerned with animal life in the forest, they were asked to find data on that subject. However, that is not always what they did. The young people chose video that best reflected the highlights of the field trip for them! The scenes of them wading into the low rolling waves at Cox Bay seemed more interesting to them than a lecture on salmon fighting their way up a logged stream.

These student-developed video projects can bring school and community together as they did for the fourth-grade Colonial Fair at Little River Elementary School (South Riding, Virginia). The students, using their digital cameras, captured their special school event and published it on the Web so all the grandparents who could not attend were still able to see the program. Blossom Valley (California) Learning Consortium's 4th annual Young Authors and Multimedia Faire showed parents, teachers, and the community what their students were learning. This desktop movie documentary exhibits student work and showcases exemplary teaching and learning.

Video in the Preservice Education Classroom

Video is used to model best practices by capturing the best in e-learning environments in exemplary classrooms. Colleges of education are sharing digitally created video examples as a demonstration tool for preservice educators. They find this opportunity for a shared

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viewing of the work of an exemplary teacher far more powerful than narrative description. Video makes it possible to go inside the classroom and actually "see" exemplary teaching.

The Apple Learning Interchange (ALI) has a collection of resources made available for professional development. QuickTime movies capture exemplary teaching practices embedded in a Web page to be used in a mentoring program. In "The Algebra Connection," viewers observe an Aha moment for children, and in "The Bernoulli Principle," the true meaning of authentic assessment is clearly demonstrated.

Preservice teachers can build community within the context of curriculum and collaboration during the development of a video project. This collaborative opportunity to plan and work together gives them a way to think about interacting with colleagues as they begin to work in schools. They then have had an experience to help them when they begin to integrate technology experiences into their own classrooms and school environments. One example project in this preservice class is a documentary about issues threatening penguins. Making projects such as the Colonial Fair in Little River serve a purpose for student growth and for teacher growth as well. There were opportunities for teachers to see the role of the digital video and QuickTime movies that resulted in sharing school events with community members. This

does not always occur. The desktop video of the fair has been deconstructed to show how student learning took place during the project as they see each segment of this interdisciplinary project. In addition, both preservice and inservice teachers can benefit from seeing exemplary teachers model their craft. Educators, administrators, and

other personnel can also use these kinds of video clips as part of an online résumé.

In Springfield, Illinois, School District 186, educators who participate in Project LINCOLN (Living In the New Computer Oriented Learning Environment) participate in a "restructuring of the educational process." As they participate in professional development activities, they learn how to create digital video and translate this new skill into classroom practices. All of the examples demonstrate professional development that clearly took adult learning principles into consideration. Make sure to view "We Didn't Start the Fire." This iMovie was created to introduce the Decades Project used during Project LINCOLN professional development as an interdisciplinary unit. Embedded within the video is an explanation of the basic steps to creating a multimedia presentation. This project also serves as an example of the possibility of effective video without the use of a camera, where still images from Internet resources provided content.

At Western Carolina University, students create videos as a metacognition tool. For example, students import their artwork (graphic files can be imported into a video-editing program), their musical composition, or their invention and talk about their thoughts as they created their work. Students created video overviews to unit plans on Greek and Roman mythology, Water

Video Editing Made Easy

Macintosh

Apple Computer's introduction of iMovie has opened the door to creating digital video for students and teachers. All you need is a Macintosh computer with video-editing software, a FireWire connection, and a digital camcorder, and you are ready to make a film.

Once you have finished shooting your film, connect the camcorder to the computer with a FireWire cable. FireWire is Apple's term for the protocol that makes it possible to transfer huge amounts of data very quickly. This protocol is an industry standard known as IEEE 1394. FireWire communicates sound and video in both directions between the computer and camcorder. This standard is also available on computers using the Windows operating system.

Connect your camcorder and launch your editing software. The following steps are specific to iMovie2, but other programs work similarly. The screen indicates that the camera is connected, and the user can now control the camera using VCR-like controls. Click the "import" button. The software senses when you started and stopped your camera and imports each clip to the "shelf," the area where each clip is stored. You can edit each clip and add transitions and titles. At the bottom of the iMovie Shelf are buttons for working with transitions, titles, and effects.

In addition, two sound tracks are available for the editor to add narration, music, and sound effects.

You can create still clips from any frame on your video or take still shots when shooting your "raw" footage. When the editing process is finished, you can export the edited version by sending to the camera to be saved on DVcassette videotape or save as a QuickTime movie for publication on the Web, or e-mail your movie to a friend or relative.

Windows

Microsoft Windows Me (Millennium Edition) makes it easy to edit digital video. MovieMaker, included with Windows Me, provides high-compression capabilities that enable you to store digital video on your hard drive. In addition, many third-party companies, such as MGI and Ulead, provide video editing packages compatible with Windows Me as well as older versions of Windows. Other popular PC editing software includes Dazzle and Adobe Premiere.



Cycle, Nutrition, and Pollution. The overviews include rubrics to assess videos created in the projects as part of the unit goals.

Other examples include Northwestern University students who portray characters and speak in the languages they are studying. Visit "Telenovela" to brush up on your Italian. Emory University held an iMovie Fest, and students braved stormy January weather to line up around the dormitory where the festival was held. The sponsors are already planning next year's festival based on the positive response from participants and audience.

Guidelines for Video Use

Helping students become visually literate is a concern in today's classrooms. As more and more student projects include visual presentations, it is clear that, as educators, we have not prepared our students in this area as well as we have for writing and speaking. We have taught our students the grammar of writing and the guidelines for effective oral communication because we knew this would make them good communicators with their selected audiences. We are now responsible for helping them learn and use the guidelines for communicating with audiences using what we know about the rules and guidelines for visual communication tools, in this case video.

Planning ahead is key in creating any presentation. This is also true of creating presentations that include visual documents. To start your video project, choose a subject with which you are familiar. Consider the audience and purpose and spend time planning and storyboarding. These steps are critical to the movie's ultimate success or failure. Thinking about the kind of shots required to best convey the videographers' message should be done beforehand as well. Will they need close-up, distant, or mood shots? Should the audio be a part of the filming? If so, will they need to have addi-

tional microphones? Throughout the planning, students must consider the relationship between visual communication and the content as they organize their work. Once they have completed planning, they can begin to shoot the movie using the camcorder. Once they've finished shooting, they can begin the editing process. (See Video Editing Made Easy, far left.)

Conclusion

Marco Torres, the teacher from San Fernando, talks about how desktop video gives his quiet, humble, meek students a very loud voice. One of his students says she no longer works on her projects for the letter grade; she does it because she enjoys them. Another student describes how she doesn't have to stay within the margins; there are no margins in desktop video. Torres is only one of many teachers discovering the power of video in the hands of students. Many of us have also found this resource equally useful in the hands of a good teacher to encourage students in new ways. Meaningful tools in the hands of students create lifelong learners, preparing our students for the challenges they will face in a digital world.

Resources

Projects and Online Resources

Adobe Premiere: www.adobe.com/products/premiere/main.html
 Algebra Connection, The (exemplary teaching): www.apple.com/education/dv/showcase
 Apple Short Course (on digital cameras): www.apple.com/imovie/gear
 AtomicLearning Tutorials: <http://atomiclearning.com>

Bernoulli Principle, The (authentic student assessment): www.apple.com/education/dv/showcase

Blossom Valley Learning Consortium's Young Authors & Multimedia Faire: www.apple.com/education/dv/authors

Colonial Fair in Little River: www.loudoun.k12.va.us/schools/littleriver/colonialfairmovie.htm

Cool Examples: www.ncsa.uiuc.edu/Cyberia/DVE/FusionDVE/html/cool_examples.html

Dazzle Software: www.dazzle.com/main.html

eGroups: <http://groups.yahoo.com>
 Emory iMovie Fest: www.apple.com/hotnews/articles/2001/02/imoviefest

Global Forest Project, The: <http://work.merlin.cust.educ.ubc.ca/Merlin/projects/gf/index.html>

iMovie in the classroom: www.apple.com/education/dv/lessons

iMovie: www.apple.com/imovie/, www.apple.com/education/dv

LINCOLN (Springfield, IL) digital video examples: www.springfield.k12.il.us/movie/index.html

Monarch Butterfly: www.mesquiteisd.org/imovie/monarchbutterfly.htm

Penguins Unit: <http://asterix.ednet.lsu.edu/~kfossey/4507/penguins.html> (full unit), <http://asterix.ednet.lsu.edu/~kfossey/4507/imless.html> (iMovie Assignment)

San Fernando High School Immigrant Project: www.apple.com/education/k12/imagine/0203/sanfernando/profile/immigration

Short Courses (on digital cameras): www.shortcourses.com

Telenovela (Northwestern University): www.italian.nwu.edu/telenovela/telenovela.html

The Wonderful World of Visual Arts: <http://Web54.sd54.k12.il.us/schools/enders-salk/virtualartmuse/>

Western Carolina University Projects: www.ceap.wcu.edu/houghton/EDELCompEduc/themes/videostreams/UnitPlanvideoList.html

Windows MovieMaker: www.microsoft.com/windowsme/news/article/digitalstate.asp

Print

Creating PC Video by Douglas Stevenson and Robert Wolenik. (1999). Woburn, MA: Butterworth-Heinemann.

iMovie 2: The Missing Manual by David Pogue. (2001). Cambridge: O'Reilly.

The Complete Idiot's Guide to iMovie 2 by Brad Miser. (2000). New York: Que: Macmillan.

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