

Del Siegle, Ph.D.

Literacy in the 21st Century: The Fourth R—Video Recording

My wife and I recently gave our fifth-grade niece a digital camera as a holiday gift. We were elated with the exuberance she displayed upon opening the package, but soon learned that her happiness with the gift was not for the reason we had anticipated. Two of her reactions to the gift surprised us. First, we expected her to use the camera to take photographs. Wrong. She immediately began making movies with it. We had never considered the movie-making features when we selected the camera. Although we had anguished over pixel resolution and face recognition features, we were completely oblivious to the movie function that came with the camera. Second, we were surprised by her adeptness at learning the various camera functions. She was not intimidated by the plethora of camera options and buttons and easily maneuvered among them. Before long, the camera battery needed recharging, the memory stick was nearing its storage limit, and she had produced several clever movies for our enjoyment. We had witnessed a digital native in action.

Producing and sharing videos are everyday activities for digital natives. Our new president embraced the YouTube (<http://www.youtube.com>) generation by promoting his candidacy with hundreds of video clips posted to his Web site and YouTube during his presidential campaign. He continues to see the value of universally on-demand video and has supplemented the weekly Presidential radio address with video as well.

Young people are surrounded by visual images, and they naturally are drawn to viewing and creating videos. Educators are remiss if they do not seize

on this significant communication and learning tool.

Video projects have become a widespread addition to instructional strategies. Sometimes the videos serve to demonstrate students' understanding of a particular topic. In other instances students are learning about the topic as they record and edit their own video projects. In all cases, video is a great motivator for students. Students are more involved in the learning process and because the use of the computer is involved it's more in tune with their world. In some cases students who don't learn as well from the text format catch the concept more clearly through this medium. (Student Video Projects at Dartmouth, n.d., para. 1)

Similar to projects involving writing, video projects allow students to communicate their ideas, thoughts, and feelings. Therefore, most traditional school writing projects can easily be modified for a video project. For example, instead of writing a persuasive essay, students might create a documentary to influence public opinion about an important topic. Other ideas include:

- creating commercials,
- developing newscasts,
- writing and producing plays,
- creating a video yearbook,
- producing documentaries on topics of interest,
- demonstrating a skill for others to learn,
- creating music videos,

- interviewing local leaders,
- collecting oral histories, and
- conducting book talks.

Most entering college students have dabbled in video production and many are skilled at producing and editing video footage. Video production may soon be the fourth R (reading, writing, arithmetic, and recording). Benson (2008) noted that professional literacy organizations such as the National Council of Teachers of English (NCTE) and the International Reading Association (IRA) have included nonprint literacies in their teacher preparation standards. Nine of their substandards directly relate to analyzing and producing nonprint media—video being one type of nonprint media. Benson (2008) argued that educators must view literacy beyond printed text, or even printed text presented electronically:

If schools have been charged with preparing students to function in the larger world, a world that relies on multiple meaning systems and adaptability, then a focus on transmitting a closed body of literacy shortchanges students of future opportunities. (Benson, 2008, p. 637)

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Student video projects involve three operations: planning the video, recording the video, and editing the video. The purpose of this article is to discuss digital video recording options, share some common video production terms, and describe the video editing process. Readers may wish to download Druce and Walker's (1985) classroom projects using video. Although the document is dated and centers on videotape, the ideas are still applicable.

Video Recording Options

The simplest, but most limiting, method of digitally recording video is a Webcam. Most laptop computers and many desktop monitors now have built-in Webcams. If

a computer does not have a Webcam, one can be purchased for under \$20 from an electronic store such as Radio Shack. Webcams traditionally have been used for video conferencing. (For information on video conferencing, see "Free Options for Internet Videoconferencing: Moving Beyond E-mail and Chat" in *Gifted Child Today*, Vol. 31, No. 4, pp. 14–18.) Although it is simple to use, the Webcam's portability and image quality are limited.

Students could transport and continually reposition a laptop to record video with a Webcam, but the process would be awkward.

Most cell phones and many personal digital assistants (PDA) also feature a video recording option. Although these are very portable, the video quality usually is limited; however, the quality varies among devices.

USB video cameras burst on the scene last year. These small video recording devices have a built-in USB connection. They are easy to use and connect directly to computer USB ports for viewing and downloading the recorded video clips. Flip Video

(<http://www.theflip.com>) produces a variety of different models. Last year, *The New York Times* called them one of the most significant electronic products of the year.

Many digital cameras, such as the one we purchased for our niece, also have video recording capabilities. The quality varies depending on the camera. Nikon recently introduced a digital single lens reflex camera that records high definition quality video.

Finally, digital movie cameras exist with a variety of features and price ranges. These can be purchased for a few hundred dollars or several thousand dollars. Many have sophisticated editing features built into the cameras, allow for external microphones, and provide video editing software for the owner's computer. These cameras are easy to use and produce the highest quality video. These cameras digitally record to digital video cassettes, memory cards/sticks, or DVDs.

Video recorders and video editing software save video files in a variety of formats. The FileInfo site (<http://www.fileinfo.net/filetypes/video>) lists more than 160 dif-



Figure 1. Video converter software.



Figure 2. Wide camera shot.



Figure 3. Medium camera shot.

ferent file extensions used for video files. The most common formats are Quicktime (mov), which originally was developed for Mac platforms but now is available for most operating systems; audio/video interleave (avi), which was developed for Windows machines to rival Quicktime; Motion Pictures Expert Group (mpeg), which was created for Web use for all operating platforms; Windows Media



Figure 4. Close up camera shot.

Video (wmv), which was developed by Microsoft for its operating systems; and RealVideo® (rm), which was created to stream video on the Internet (Basic Web Resource Site, n.d.). Video converter software (see Figure 1) can be used to convert video from one video file type to another. This is important because some video editing software programs (such as the one described in the article) only accept video clips from a limited number of file types.

Video Production Terminology

One of the goals of gifted education has always been to encourage a higher level of sophistication for student products through advanced processes. In other words, we want students to function as practicing professionals. Although the quality of young students' products may not match those of a professional, students can use the methodology of the professional and produce as authentic a product as they can for an authentic audience (Renzulli, 1982). For example, creating a movie also involves script development, storyboarding, planning camera positions, and editing. (For information on multimedia planning and storyboarding, see "Lights . . . Camera . . . Action Freeze: Harnessing the Motivational Power of Music Videos" in *Gifted Child Today*, Vol. 31, No. 2, pp. 14–18.)

Professionals use different terminology to describe camera positions and movement. These fall under four categories: camera shots, camera angles, shot movements, and position/point of view. There are four basic camera shots: wide, medium, close up, and extreme close up (see Figures 2–5). By varying the closeness to the subject, the videographer creates interest and provides detail.

Table 1 Pitfalls to Avoid When Using a Video Camera

- Avoid shooting into windows or bright light. This often causes the subjects to appear too dark. Position the camera with the light source behind or to the side of the camera.
- Frame shots so subjects have space to walk or look into. Subjects looking to the side should have empty space in front of them.
- Hold the camera steady. This can be difficult with zoomed shots, because camera movement is magnified when the lens is zoomed in. A tripod may be useful.
- Light sources have color temperature. Skylight is bluer than incandescent light, which is different from tungsten light. More sophisticated cameras have a white balance setting that allows users to focus on a white object (such as a sheet of paper) and set the correct color. Other cameras have automatic white balance (which usually is quite good, but can be tricked by a dominance of one color in the scene) or manual white balance settings for various light sources.
- Keep a spare, fully charged battery and additional video storage media available.



Figure 5. Extreme close up camera shot.

Shot angles include eye-level, low, and high angles. Eye-level angles are common. Low angles place the camera below the subject and look up at the subject. Low angles can make the subject appear larger, more powerful, or more important. High angles place the camera above the subject and can have the opposite effect of low angles by making the subject appear small and helpless (The California Arts Project, n.d.).

Shot movements include panning, tilting, zooming, and reverse zooming. The camera follows the horizon from side to side with a pan. This horizontal movement often is used to follow action such as a moving car or a running character. The subject usually is clear while the back-

ground often blurs during a pan. The camera follows a vertical plane with a tilt, such as from the floor to the ceiling or the ceiling to the floor. A tilt often is used to view tall objects such as trees or buildings. A zoom brings the subject closer. A zoom is used to move from a wide shot to a close up. Students often overuse the zoom option. The zoom should be used when one wishes to put the closer view in the context of the wider view. Reverse zooming is moving farther from the subject. Videos often end with a reverse zoom that moves from the main subject to a wider view of the closing scene.

The points of view can be through the eyes of a specific character, in which case the camera might move throughout the scene from the perspective of that character, or the view can be from an outside observer. Cameras can be stationary (such as on a tripod) and follow the action, or they can be mobile and move throughout the scene. The latter has become popular with the proliferation of reality television shows. Many cameras have a camera steady feature that minimizes the effect of the camera shaking. This is particularly useful with zoomed shots where camera movement is magnified. See Table 1 for some video recording tips.

Editing Video

Apple Inc. first made video editing commonplace with its introduction of iMovie more than a decade ago. In 2008, iMovie was completely rewritten to make it easier to use. It is packaged with Apple's iLife suite. Microsoft's response

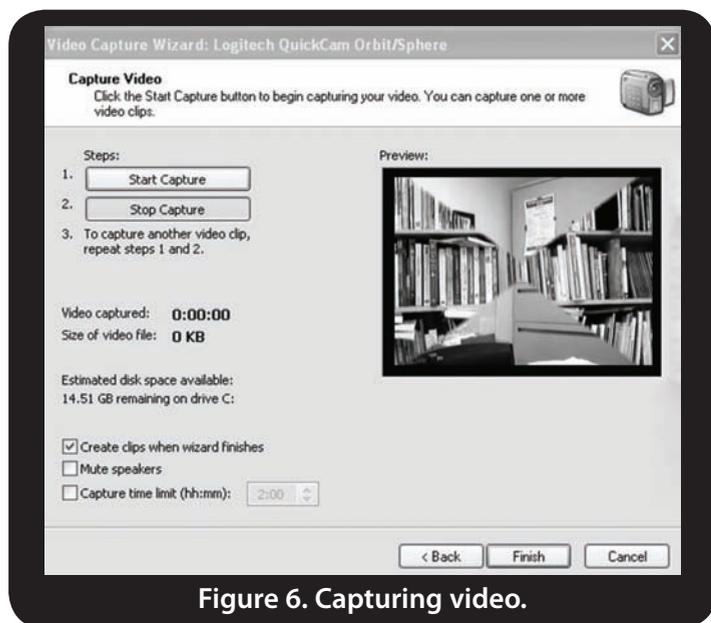


Figure 6. Capturing video.

to iMovie is Windows Movie Maker, which is distributed free as part of the XP installation. Readers who do not have Movie Maker can download it from <http://www.microsoft.com/windowsxp/downloads/updates/moviemaker2.msp>.

This section describes how to create a simple, edited movie with Windows Movie Maker 2.1. Although more sophisticated video editing software is available, Movie Maker is free editing software that can be used to introduce students to movie editing on the Windows platform. Once the Movie Maker program is open, possible video clips need to be brought into the program (captured). Movie Maker will directly capture recorded clips from a digital movie camera, import video clips stored on a computer, or capture live video from a Webcam (see Figure 6).

The Movie Maker software features four windows: **Movie Tasks** (top, left), which contains control options to capture video and add titles and effects; **Collection** (top, center), which displays icons for available video, still photos, and sound that has been captured (as well as transitions and special effects); **Video Playback** (top, right), which is used to view the movie as editing progresses; and **Timeline/Storyboard** (bottom), which toggles between a storyboard and timeline view by clicking on **Show Storyboard** or **Show Timeline** (see Figure 7).

To capture video from a video device, select **Capture Video . . .** from the **File** menu. The **Capture from video device** option on the **1. Capture Video** menu (top, left) also may be used to capture video. A dialog box will display all of the video capture devices connected to the computer. Most video digital cameras have high-speed DV out sockets that connect with the appropriate cable to firewire (IEEE

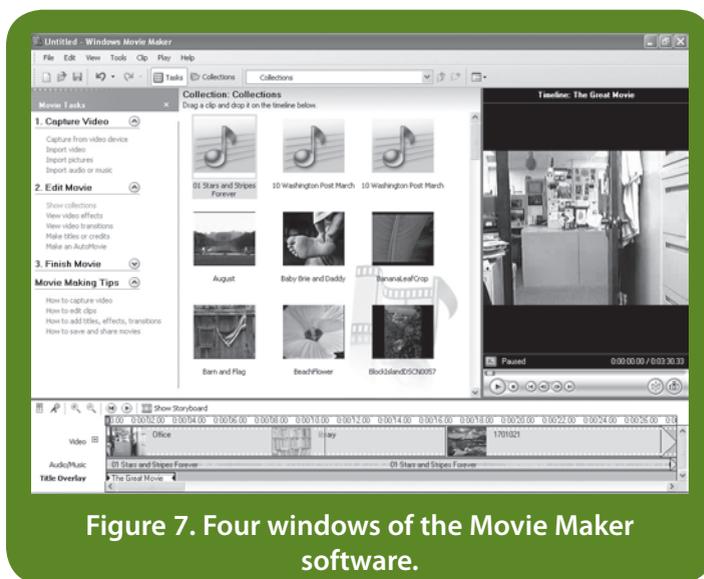


Figure 7. Four windows of the Movie Maker software.

1394) ports on computers. Webcams traditionally connect with USB ports. Once the digital video camera is connected and selected, the video clips will download into the editing program. Each video clip will appear as a separate icon in the top, center window. Video clips taken with simple digital photo cameras should be downloaded to the computer just as still photos would be downloaded. These clips then can be imported into the editing program. These cameras often save video files in the Quicktime format that Movie Maker does not accept. The files will need to be converted a mov or mpeg format before they can be imported into Movie Maker for editing.

Once the video clips are displayed on the **Collections** window (top, middle), students simply drag the icons onto the **Video** section of the **Timeline** (bottom window) in the order they wish to include them in their video. Once a clip is on the **Timeline**, it can be edited. Editing individual video clips is as easy as cropping photographs. Each clip that has been placed on the **Timeline** occupies an area on the **Timeline** that corresponds to the video clip's length (the + and - icons expand or shrink the timeline). By clicking on the left or right side of a clip's boxed area, students can trim video (by sliding the ends in) from the beginning or end of the video clip. In other words, they can remove unwanted video at the start or end of the video clip (see Figure 8).

In addition to trimming video clips, transition effects (such as dissolves and wipes) can be placed between video clips. These edits occur in the **Storyboard** view (click on **Show Storyboard** in the bottom window). The bottom window has two views: **Storyboard** and **Timeline**. Each clip appears as an icon. Students can view the transition options by clicking on **View video transition** under

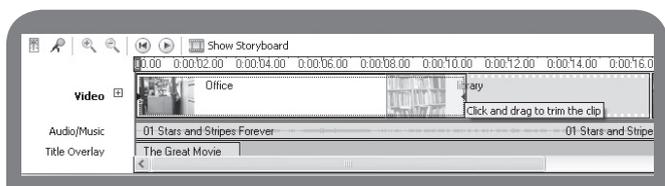


Figure 8. Trimming a video clip.

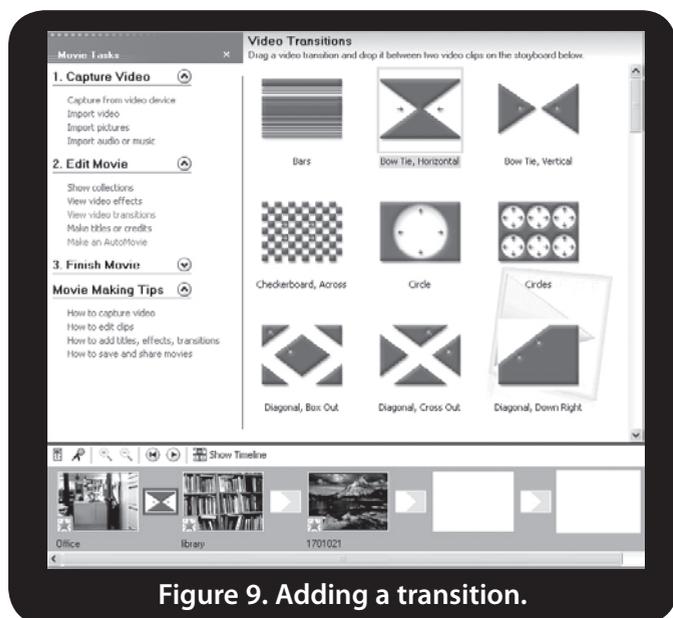


Figure 9. Adding a transition.

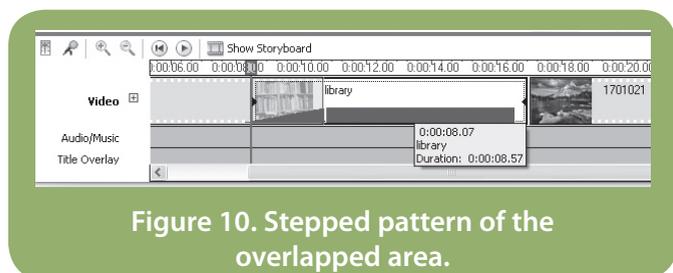


Figure 10. Stepped pattern of the overlapped area.

the **2. Edit Movie** options of the **Movie Tasks** (top, left window). The various transitions appear where the **Collection** window (top, center) was. Students simply drag the desired transition onto the small transitions box that appears between each video clip (see Figure 9). Students control the length of the transition with the **Timeline** view (switch to this view by clicking on **Show Timeline**). In the **Timeline** view, students drag movie clips across each other. The overlapped area of the two video clips (representing the transition time between the two images) has a stepped pattern (see Figure 10).

With these three simple editing options of placing clips in the desired viewing order (or moving them to the desired order) on the **Timeline**, trimming clips to remove unwanted video (on the **Timeline**), and inserting transition, titles, and video effects in the **Storyboard** view, students

can create an impressive movie product. Movie Maker also allows students to add narration or background music to their video project, as well as overlay opening and closing credits. Students view their video as they edit it by using the viewing controls in the top, right window.

Once the video is finished, it can be saved to the computer, saved to a CD, sent in an e-mail, sent to the Web, or recorded back to a digital camera. Each of these options is available under **3. Finish Movie** in the **Movie Task** window at the top, left. Movies can be saved in a variety of quality levels that require different saving times and storage space. Higher quality video will require more time to save and considerably more disk storage.

Centuries ago, being able to speak was the method of communication. With the advent of the printing press, literacy involved the ability to read. Today, means of communicating and the definition of literacy are once again evolving. In the highly visual, 21st century, literacy now requires individuals to understand visual messages. Technology natives have embraced the multimedia platforms of the 21st century, and effective educators must build them into the learning environments they create for their students. **GCT**

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