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Orlando R. Kelm
University of Texas at Austin

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Orlando R. Kelm
University of Texas, Austin

USING AVAILABLE TECHNOLOGY TO CREATE PEDAGOGICAL MATERIALS FOR FOREIGN LANGUAGE

There exists an increasing desire to use technology to create pedagogical materials in foreign language education. The object of this brief review is to examine the steps that are taken to complete a task that requires the use of technology. That is to say, rather than simply review a specific software product, I would like to review a task and what it takes to complete a given task when technology is part of the development. The task that I have chosen to review is the creation of a QuickTime® video clip on a WEB page. In the process, we will discuss the following software applications: Avid VideoShop®, MoviePlayer®, Internet Movie Tool®, and Adobe® PageMill™. As one can see by the names of these programs, the discussion will be platform specific, focusing on Macintosh computers. Fortunately, other platforms follow a nearly identical process.

STEP #1: MAKE THE VIDEO

Begin with any video from a video player or camcorder. This can be either an existing video or an original one that you have filmed yourself. For original video clips, I use a Sony Hi8 Handycam and have been pleased with the results. When making original video clips there are two low-tech items that I might suggest. First, use a tripod whenever possible. Even if the camcorder has a "steady-shot" function, the video clips look more polished when filmed on a tripod. Second, as related to language instruction, the quality of the audio portion of the clip is usually more important than the video. To improve the audio of a video clip try using an external clip-on microphone whenever possible. Of course this depends on the nature of the video clip, but the built-in microphones are omni-directional and pick up too many external sounds. A directional clip-on microphone can be purchased for less than $40.00 and will reduce background noises and result in clearer audio of the parts that you do want to hear.

STEP #2: DIGITIZE THE VIDEO CLIP

Camcorders and video players generally have audio and video out ports (or s-video ports on newer models). These can be directly plugged into a computer if the computer also has audio and video (or s-video) ports. I happen to use a Power Macintosh 8500 that has these ports built in. If your computer does not have the built-in port, then you need to purchase an item called a video card.

In order to digitize a video clip, one needs to use a software program. Here I will describe a program called Avid VideoShop® because it is a little easier to use than some others and, although many do not know it, it is frequently found in the "Apple Extras" folder that comes free of charge with many Macintosh computers.

When one opens up Avid VideoShop®, the first decision is to determine how big your movie screen will be. The standard size is 160 x 120 pixels and it is better to avoid the temptation to make the movie clips larger. The most important constraint in making a movie clip is the amount of memory that is required. If the movie screen is larger, the memory requirements will be much higher. Even at 160 x 120, the amount of memory that is required to make a movie is shocking. For example, a movie clip of just 60 seconds, can eat up over 70MB of memory! With a few controls, that same video clip can get down to maybe 12MB of memory. As such, it is important to know a little bit about how to minimize the memory load. Besides reducing the size of the movie window, there are other items that also control the amount of memory needed.

Memory Constraints: Audio. There are three factors related to audio that change that amount of memory required: stereo versus mono, 8-bit versus 16-bit sound, and low versus high frequency sounds. As to the first one, stereo sound requires more memory than mono. For movie clips that are to be played over the internet, I always choose mono and the difference in quality does not seem to be relevant. Second, there is a big difference in quality between 8-bit sound and 16-bit sound. Consequently, I am not willing to make the sacrifice in quality for the savings in memory. It is better to stay with 16-bit sound. The concept between 8-bit and 16-bit sound is related to how often sound measurements are taken. It is similar, for example, to the idea of measuring the average speed of a car. If we check the speedometer once every minute, our average speed will be more accurate that if we had only check the

speedometer once every ten minutes. The same with 16-bit sound, measurements are made twice as often as with 8-bit sound. Third, it takes more memory to record high frequency sounds. When one talks of CD quality sound, high frequency sounds of up to 44,100kHz are included in the recording. I record movies at 22,050kHz. There is no need to record at CD quality, but the next setting down, 11,025kHz produces poor quality and is not worth the savings in memory. There is still one more decision to make and that is whether to compress the audio or not. As related to materials for language teaching, users want to be able to hear the audio clearly. It is not generally worth losing audio quality via compression. The exception is when the movie has a lot of music. I have found that IMA 4:1 compression still sounds pretty good with movie clips that have a lot of music. To summarize, the audio portion of recordings on the internet are just fine when set at mono, 16-bit, 22,050kHz, and no compression.

Memory Constraints: Video. As compared to audio, most of the memory strain is related to the video portion of the movie. Again there are three major factors that determine the amount of memory required for video: size, frames per second (FPS), and compression. We have already mentioned size, which is best left at 160 x 120. The number of frames per second determines how smooth or jerky the movie is. When the frames per second are reduced, the picture jumps from one frame to the next. The normal setting is to record at 15 or 30 frames per second. If your movie does not contain a lot of quick movements, then 15 frames per second will be sufficient.

When making a movie there are two distinct times when we have to make a decision about compression and frames per second. First is when we initially record the video clip on to the computer and second is when we save the final digitized video clip as a movie. It is the second time that is more important. For example, if your initial recording is digitized with a lot of compression but your final version of the movie has no compression, it will still be an extremely large file. It is better to initially record your clip without compression (highest quality) and then save the finished version with compression. Set the initial compression to “none,” colors to “thousands” and frames per second to “15.” After editing the clip, try setting the final compression to “video.” There is another common compression that is called “cinepak” that actually compresses the movies more than “video” but the “cinepak” seems to look more grainy.

Based on how long the movie clip is, try "video" first and if it is still too big, try "cinepak." It is worth noting that files that are saved with cinepak compression take an extremely long time to save on the computer.

If the movies are still too large, it is also possible to take a "snapshot photograph" from the video recording. It takes much less memory to change the snapshop every four or five seconds than it is to maintain motion video. The snapshots make the movie look like a slide presentation, but depending on the nature of the video, this may not be a problem. The readers who would like more information about Avid VideoShop® may look at their WEB site: http:www.avid.com.

STEP #3: MAKE THE VIDEO PLAY ON NON-APPLE COMPUTERS

Once the video is made, it still will not play on non-Apple computers. Before the movie can be placed on the internet and accessed by non-apple users, the movie needs to be flattened. One way to flatten a movie is to open it up using a shareware program called MoviePlayer®. MoviePlayer® accompanies QuickTime® allowing the user to play the movies. Within MoviePlayer®, when choosing "Save As" under the "FILE" option, there is a box entitled "Make movie self-contained." When this option is chosen, a second box entitled "Playable on non-Apple computers" becomes active and should also be selected. Movie files should be named with the extension filename.mov. This way, later when the file is accessed on the internet, the browser will recognize the file as a movie. MoviePlayer® is automatically downloaded with QuickTime®, and more information is available from the QuickTime® WEB site: http:apple.quicktime.com. The WEB site is also the location where one can download the QuickTime® plug-in that is required if the user wants to play movie clips while using the browser Netscape®.

STEP #4: SUBMIT THE FLATTENED QUICKTIME MOVIE TO "INTERNET MOVIE TOOL"

Anyone who has tried to watch a movie clip on the internet knows that it takes some time to fully download the movie. It is possible for an internet user to start listening to the beginning portion of a QuickTime® movie even before the file has downloaded completely. In order to do this, the movie must be submitted to a shareware program called Internet Movie Tool®. Without Internet Movie Tool®, the user would have to wait for the whole file to download before listening to any part of the

movie clip. Internet Movie Tool® is also downloadable from the QuickTime® WEB site. To use this application, simply launch Internet Movie Tools®, highlight the file that you want to submit and click on "OPEN."

STEP #5: SAVE THE MOVIE ON A SERVER

The finished QuickTime® movie should be saved on your server with the extension filename.mov.

STEP: #6: PREPARE AN HTML DOCUMENT THAT REFERENCES THE MOVIE CLIP

In order to see the movie on the internet, there has to be a text file that contains HTML code which makes reference to the movie. Within the document write a line with the following information:

```
<EMBED SRC="http://www.servername/filename.mov"
PLUGINSPACE="http://quicktime.apple.com"
WIDTH="160" HEIGHT="140"
ALIGN="BOTTOM">
```

This portion of the document will embed the movie within the WEB page. If the user does not have the QuickTime® plug-in, the user is sent to that location to download the plugin. The width and height is a little larger than the size of the movie because there needs to be room for the control bar that is located at the bottom of the screen. There are several editors on the market that help in writing HTML documents. Most are fairly similar. One of the features that I like about Adobe® PageMill™ is that it allows the user to toggle from the PageMill screen to a straight HTML code screen. There are several items where it is easier to use PageMill features (e.g., making tables). However, there are other items where it is still easier to write in straight HTML. In the case of the embedded movie, one needs to write the HTML directly. Finally, when I save this document, I usually give it the same filename as the movie, using the extension filename.html. For those who would like more information about Adobe products, their URL is as follows: http:www.adobe.com.

As we see in this brief review, there are a lot of steps involved in the creation of movie clips on the WEB. However, none of the procedures is extremely technical and the software is either low cost or free of charge. It is well within our ability to provide students of foreign language with authentic video clips that are accessible over the internet.