

APPLE Learning Interchange

Videography for Educators

Intermediate/Middle School/High School/Higher Education Fine Arts/Technology Showcase

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INTRODUCTION

The Videography for Educators exhibit features tips and techniques to assist in the creation of quality video products. The exhibit provides example planning documents and video examples to illustrate concepts and skills. The content assumes you are already learning the mechanics of iMovie 3 or Final Cut Pro, are familiar with the fundamentals of operating your camcorder, and are ready to learn the art of videography. The concepts, skills, and examples are presented in a manner relevant to classroom teachers. This exhibit will continue to grow as new materials are created by exhibit authors in the Apple Learning Interchange that represent specific tips and techniques.

PLANNING

Introduction

The capture of video during the production phase can be time consuming, so pre-production planning can help to insure you get the best quality content on the first try. Depending on the complexity of your project, your planning should include the following:

- Defining the Project
- Video Style
- Production decisions
- Pre-production Scouting
- Planning Scenes and Shots

Defining the Project

Plan Before You Shoot
The processes used for planning will vary based on the complexity of your project and the style of video you are producing. For short, instructional style video clips, a simple written description will suffice. For more complex projects such as a video drama, a pictorial storyboard may be more appropriate. Pre-production planning should include the logistics of the production as well as guidance to the camera crew. Even with a simple project, you will find a large number of variables that can positively or negatively impact the quality of your project. The combination of thorough planning and experience will help make the difference.

When capturing longer segments with the subject facing the camera, you might want to consider prompting software. Run the software on a laptop sitting as close to the camera lens as possible. While we haven’t tested this product extensively, you may want to try: Presentation Prompter [http://www.nextforcesw.com/presentationprompter.html]. A free trial version is available.

**An Example Plan**

Initial planning documents can enhance the results of your project. View the example plan for an exhibit of teaching practice. In the document, the exhibit objective is defined, target audience identified, and each video element to be included in the exhibit has been defined along with a brief plan for the context that will accompany each video segment. The location for the video capture has been identified as well. This “upfront” planning will result in the purposeful capture of specific video segments that will contribute to the project in a meaningful way. This initial plan will impact later decisions such as the equipment required as well as scheduling.

**An Example Parent Release**

The participants who appear in the video are often called the actors, talent, or subjects. Consider the legal issues surrounding the use of location and talent. If minors are included in a video, a parent's signature on a permission slip is required. Adults should also provide written releases if the final project will be published on the web. The release should state the specific project for which the video will be used, explain how it will be distributed, and request a signature giving you permission to publish the products and likeness (images and video) of the participant. It may be useful to explain how privacy and safety issues are being addressed.

**The Treatment**

A brief narrative description of what the viewer will see and hear in your video is called the treatment. The process of writing a description of the video will help you think deliberately and creatively about what the finished video should look like to the viewer. Treatments are also useful in communicating with others your plans for specific video segments. Getting others to evaluate the treatment can result in valuable feedback that will help you improve your plans. If your project includes several video clips, a short treatment for each clip is useful. View the attached treatment statement for an introductory video to be used in an exhibit of practice.

**Video Style**

**Introduction**

An important part of the planning process for video production is deciding the appropriate video style. We have been trained by watching television to expect specific styles for different purposes. These styles often demand different production techniques when capturing video. The style selected will depend on the objective for the video. Keep in mind that a given video scene may use a combination of styles. Should the video be instructional, persuasive, make the viewer feel they are present in the classroom environment or that the on-screen subject is speaking directly to the viewer? The answer will impact the video style you choose. An excellent way to learn more about style is to observe television programs, paying attention to style.
Documentary - Instructional

documentary.mov - video/quicktime

Think about a video project whose goal is to share an effective teaching practice. There probably will be times when the storyteller speaks directly to the exhibit viewer, such as during an introductory invitation. In those instances, having the speaker face the camera directly is appropriate and expected. Think about a television news broadcast or video documentary as an example. The camera normally frames the subject with a centered bust shot (waist up or higher), and the talent usually looks directly at the camera. To keep this “talking head” approach from being to dry, use cutaways to video segments or still images to illustrate the points made by the speaker. In Apple Learning Interchange Exhibits of Practice, introduction videos and reflections are often produced in a documentary or instructional style. Lighting for the primary speaker in this style is usually standard three-point lighting.

Situated Video

situated.mov - video/quicktime

In situated video style, viewers are made to feel that they are bystanders in one corner of the room watching the action. The video should appear to be or be unedited or interrupted, and it should certainly not look staged. The subjects in the video should be facing each other, not the camera. Even lighting across the room is expected. An example that is appropriate for this style would be a video segment intended to show classroom action for analysis of teaching style or classroom interactions. It is also important to capture the action with as little disturbance to the environment as possible. It will often be impractical to shoot this content with anything but wide angle framing if you are the camera operator and also one of the subjects being captured.

Scripted Enactment

A scripted video segment (drama) may be useful in illustrating a point when it is impractical to capture actual footage. For example, if the project goal is to show the proper action if a burn occurs in the science lab, you may need to author a simple one-scene act complete with scripts for the participants. In this style, the actors face each other rather than the camera. The content is often captured in short, staged clips that are edited together to appear as a non-interrupted scene. A simple storyboard will help you plan for the required sequences, camera positions and framing. Remember you can capture the required clips in what ever order is expedient and sequence as planned in the editing process.

Voice Over

34_voiceover.mov - video/quicktime

The voice-over is an effective technique in both instructional and documentary video projects. Either a sequence of stills or a series of video shots is accompanied by audio narration. Often, the content illustrates or further explains the subject of the narration. The voice over can also be a possible solution when the audio captured on site is bad or has inaccurate information.

Production Decisions

The Challenge of a One-Camera Shoot

Often, it will only be practical to capture video footage with one camera. This can present a challenge when trying to capture the action in a classroom. For example, the goal might be to show the teacher (at the head of the class) asking a question followed by a student response. It would be nice to have a close up of both participants. Since it is a bad idea to quickly pan back and forth between teacher and student (The Blair Class Project), a wide-angle shot may be the only choice with one camera unless you can stage the shoot.

One-Camera Technique
One-camera solutions involve a little staging of the action. Simply reposition the teacher and student together, for example, at a table allowing them to simultaneously be in the field of view. A single medium shot will now cover both participants. When this is not possible, you may choose to stop the action to reframe the camera. This will interrupt the normal classroom process, however, your students already know that a video is being made. Capture the teacher’s question and simply ask the student whose hand is up to pause a moment before responding while the camera operator re-positions the camera. This may be a reasonable approach if you are shooting a limited amount of short video clips to a very specific plan.

**Two-Camera Production**

With two cameras, and two operators, a close-up video can be captured of both teacher and student at the same time. The two video sources can be combined into one during the editing phase. The appearance of a two-camera shoot can be given by capturing footage before or after the main action that can be used in cut-aways or cut-ins. For example, capture a close-up of a student facial expression, the white board if it is in use, a close up of a classroom object that is being discussed, or just a wide-angle shot of students listening. These short clips can be inserted into the video, momentarily covering the video track, while the audio track flows continuously.

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**Pre-production Scouting**

**Introduction**

A key strategy for successful videography is location scouting. Professionals often have access to a studio environment where lighting and sound are known factors. A video shoot in a classroom, gym, or outdoors would be called a field production. In field production, many variables arise that could result in poor video without adequate preparations. Reduce the possibility of problems by visiting the prospective sites ahead of time. The following are some suggestions of what to look for while scouting a production site.

**Lighting Considerations**

While scouting a field production site, note the available light from overhead lighting as well as windows. There may be times of the day when natural light will be more useful. Is there space for additional lighting, for example, lighting stands? Check on the availability of wall outlets and current limits when planning for additional lighting or other powered equipment. Note lighting "hot spots” or dark areas at the site. For example, most classrooms have overhead fluorescent lights. If these lights are in field of view for your camera, it can cause problems. The typical camcorder automatic exposure will underexpose faces when a bright light is in the background. Either plan to correct for exposure or change your plan for positioning the camera or subject until the light is not in the field of view. This might be as obvious as raising the camera higher and shooting down at your subject.

**Audio Considerations**

Plan to use some type of external microphone close to the subject. This will reduce but not eliminate ambient noises in the room. Check for background noise or echo present in the room. Find out if sources of noise can be controlled during the production. For example, it might be possible to turn off the air conditioner in a room for a short time. Determine how and what type of microphones might be required. Insure that no background music or other published audio is playing during the shoot, so you will not have to be concerned with media rights issues.

**Camera Positioning**
Visually plan for the camera and tripod position as well as cable placement. The tripod and camera should be placed where the students’ view will not be blocked and as close to the action as possible. Cables and tripods should be placed in positions that will not present a tripping hazard. If there is no available floor space, adjust the legs of the tripod and set it on a level table top or counter. If your plan calls for different scene compositions, locate practical camera locations for each shot while keeping in mind audio and lighting considerations. Plan for a field of view that does not surround your subject with large areas of either white or black as the automatic exposure on your camera will be confused.

Planning Scenes and Shots

Introduction
A shot is a continuously captured video segment. A shot is also sometimes referred to as a “take.” When shots are sequenced and combined during the editing process, the result can be referred to as a scene. A scene usually “appears” to represent continuous time in a single location. In truth the shots can be captured in any order, at any location, and at different times. A scene can also be composed of a single shot. Often, in instructional video, a scene will be constructed of a primary shot interrupted by cutaways to shorter clips (shots) while maintaining the audio from the primary shot.

An Example
To understand why the distinction between a shot and a scene might be important, consider the following example. Imagine a project plan calling for capturing a teacher giving directions to students for a lab from the front of the room, followed by a segment showing the lab in progress. This would require at least two scenes. The “teacher instruction” scene could be made of one “shot” or a sequence of shots, for example, a shot of the teacher talking with a cutaway shot to the equipment discussed. It qualifies as a scene because the viewer will perceive it happening at one time and one location. It also generally requires one setup of camera, lighting, and audio. The second scene of the teacher and students working in the lab would require different camera position, framing, audio, and lighting. Switching between the two scenes in the final project should be an obvious transition of time and position to the viewer. This might be accomplished with a dissolve to black followed by a dissolve up from black.

Scene Setup
By defining the scene setup requirements ahead of time, the correct equipment can be brought and quickly arranged. Planning the scenes and shots before arriving for the shoot should save time and ensure nothing is left out. Your plan should list the scenes, including location, description, and the shots that make up each individual scene.

Planning for Equipment Setup
Specify a microphone plan for each scene. The plan should include a list of required microphones by type: lapel, shotgun, or hand held. Which microphones are wireless? What will be the location of each microphone during the scene?
Specify lighting for each scene. The lighting plan will include the kind of lights that will be used as well as the location of each light. The plan may specify natural lighting but should still include the direction of the light. Note if any bright lights will be in the camera's view.

Specify the camera position for each scene. The location and height of the camera should be noted. Include the following points in your shot plans.
- For each shot describe framing: wide, medium, or close
- Camera movement (zooms and pans)
- List transitions between shots (if a straight cut is not to be used)
- List transitions between scenes

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**EQUIPMENT SETUP**

**Introduction**

Digital Video camcorders today are so easy to use that most people can take them out of the box and put them in operation without ever reading the manual. However, this may be a mistake, since most camcorders have features that can help solve common problems when capturing video. The average user probably never uses these features. This page will include a few tips and techniques for using your camcorder wisely.

**LCD Screen or View Finder**

Use the camcorder viewfinder to check for quality, not the LCD screen. Most DV camcorders have both a viewfinder (eye piece lens) and an LCD monitor. When first setting up for a shoot, it is important to check lighting by looking through the viewfinder rather than on the LCD monitor. The LCD monitor has adjustable brightness and contrast, making it possible to partially correct for bad lighting. This correction for the LCD display, however, does not impact what is captured to tape. The viewfinder more accurately reflects what will be recorded.

After checking through the viewfinder for appropriate lighting, use the more convenient LCD monitor for framing shots. Keep in mind the LCD may not be useable in bright sunlight. Also be very careful not to let direct sunlight enter the viewfinder lens. The lens can focus the heat and do permanent damage to your camcorder’s viewfinder.

**Tripod**

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Initial Setup of your Shot

**TIP**: Use the viewfinder for judging adequacy of lighting and LCD for convenient framing.
Spare the audience from visual disorientation by shooting from a tripod rather than attempting to use a hand-held camcorder. This is a key difference between home movies and professional video. There may be times with hand holding a camcorder will serve a creative purpose, but generally you should be using a tripod.

In selecting a tripod consider the size of your camcorder, the smoothness of the pan head, and the total extended height possible with the tripod. If shooting from the back of a classroom, a short tripod will often fill the bottom of your screen with the back of the students’ heads.

In a squeeze, set a short tripod on a stable table or platform. Make sure the tripod is on an isolated platform, not one upon which people will be standing. Even the smallest vibration can impact the quality of the finished product.

**Using Auto Focus**

Be careful with auto focus. Many camcorders provide you with the choice of auto focus or manual focus. Auto focus can be prone to error in a classroom environment, especially if the subject is surrounded by other people and objects. The camera may suddenly focus on someone's head sitting between the camera and the intended subject, causing you to have to re-shoot. Switching to manual focus and focusing on the main subject can prevent this from happening. Remember to refocus manually for each new take. As a side note, camcorders will drain the battery faster with auto focus on. There are, of course, times when manual focus may not work, for instance, when capturing a person moving toward the camera.

**Auto Exposure**

Consumer grade camcorders use an averaging process to select the best exposure. This works well if the brightness values vary smoothly across the viewable area but often fails when the levels of brightness differ greatly. There are a number of common circumstances that can result in bad exposure.

Beware the backlight. For example, you may find yourself capturing a speaker standing in front of a bright light or notice an overhead fluorescent light in the field of view. Correct the problem by moving the subject or changing the camera to subject angle.

Auto exposure may also fail if your subject is wearing dark or light color clothes when you zoom in close. Recommend your talent wear neutral, yet bright, clothing.

If your subject is standing in front of a classroom white board, the result will often be an underexposed face. Remember your camcorder is averaging all the pixels viewed to determine exposure. If there is a large area in view that is significantly different in brightness than your subject, it may spell trouble.

If it is not possible to correct for these problems, check to see if the camcorder has a back light mode or variable exposure control. Check for the result in the viewfinder, not the LCD. Don't forget to change the settings back to normal after the shot.

**Effective Lighting**

**Introduction**

Obviously, good lighting is critical if you expect good video. Poor lighting will result in the loss of detail and, in extreme cases, causes graininess of the finished video. Most viewers will focus on the lighting of your subject's face(s) in a given shot. If you make sure your key subjects faces are lighted well, then you will succeed. The fluorescent lighting in most classrooms may be adequate; however, even in a brightly lit room there may be problem areas that require either avoidance or correction with external lighting. Make sure the lighting is not all coming from the same direction or the subject may appear to be flat, without depth. This is especially not flattering for the "face." When capturing video in the classroom, it will not usually be practical to bring in extensive lighting systems. Adequate lighting in a room with good
overhead lighting can be had by paying attention to positioning of your camera and subjects.

**3-point Lighting**

If you are capturing an interview or close up of an individual speaker, a more elaborate lighting system can help. With even lighting the human face can look rather flat. Adding depth to the shot can be accomplished by differentiated lighting on the two sides of the face and on the background behind the subject.

The basic beginner's technique for lighting a scene with external lights is called 3-point lighting. The image above illustrates the benefit of 3-point lighting using the following 3 sources of light:

**The key light.** The key light is the primary source of illumination in a scene. It may be the sun, light from a window, or a spot light. The key light in a studio is often located at a 45 degree angle from the camera/subject horizontal line and also at a 45 degree angle vertically above the same line. The key light is usually the brightest of the light sources. It may have a translucent cover to soften the light.

**The fill light.** The fill light is selected to fill in the shadows caused by the key light. The goal is to reduce the contrast ratio. The fill light is usually 90 degrees to the side of a line between the key light and subject.

**The backlight.** The backlight comes from behind the subject. It helps separate the subject from the background. The back light may be on the wall or often illuminates the back of a person's head. If you plan to do a great deal of video projects that involve interviews or close ups of speakers facing the camera, you may want to establish a simple studio with 3 point lighting. Additional information and sources for equipment can be found at:

Cybercollege [http://www.cybercollege.com/tvp031.htm]
Andrew-Whitehurst [http://www.andrew-whitehurst.net/3point.html]
DV Creators Light Kits [http://www.dvcreators.net/products/dvck.html]

**Shooting Outside**

Shooting medium to close shots of people in full sunlight can be a challenge. The harshness of the light can leave deep shadows on the face or leave faces too dark as the camcorder's auto focus responds to bright sunshine. It is best to shoot in diffused sunlight. This can be accomplished by looking for shade or by shooting in the early morning, late afternoon, or on a cloudy day. Professionals actually use a cloth diffuser between the sun an their subjects. There is an excellent "how to" article, titled Build a Sun Diffuser, along with other great resources on the DV Creators.net webpage [http://www.dvcreators.net].

**Using a Reflector**

reflector2.mov - video/quicktime

Whether you are inside or outside, you may want to keep a piece of white foam core available to reflect light on to your subject. If you only have one key light (the sun, a window) then the using a reflector on the opposite side of you subject can create a fill light removing objectionable shadows.

**Watch Out for Lighting Extremes**

screenup.mov - video/quicktime

Pay attention to the overall differences in lighting in the view finder. Remember your auto exposure, for most cameras, looks at the average brightness of the whole field of view to determine how much light it captures. If there are lots of white or bright lights, then your subject’s face may be under exposed. In David Pogue's excellent book *iMovie 2: The Missing Manual*, David reminds us that a DV camcorder can capture contrast ratios of only about 4 to 1 (compared to 10 to 1 for film based cameras). This means that that bright spot on your subject’s forehead might translate to pure white in the captured video or
that dark grey objects will appear totally black. Either by adjusting lighting or re-positioning your subjects and/or camera, insures that the lighting does not show extremes of light or dark.

**Effective Audio**

**External Audio**

*Always use external audio.* While camcorders come with a built-in microphone, it is not a good idea to use this microphone for your video projects. The built-in microphone, because of its distance to the subject and the camera's automatic gain features, will usually pick up too much room noise and even the motor noise from the camcorder.

**Microphone Connectivity**

Most DV camcorders have a miniature stereo microphone jack which makes it possible to connect an external microphone. Pro and high-end cameras may, however, have the larger more robust XLR jacks. So it is important to make sure you purchase an external microphone that is connection compatible with your camera.

Lapel and hand held mikes that use XLR balanced cable are the least likely to introduce noise. Also XLR cables can be very long without picking up noise. If you have access to or wish to buy a XLR based microphone, a conversion box may be needed to adapt your XLR plug to the miniature jack on your camcorder. One such accessory is the Beachtek XLR Audio Adapter. This same adapter box makes it possible to use two microphones simultaneously.

Finally, be aware that microphones have different output levels. Wireless and condenser-based microphones have a high output level and will pick up sounds from a long way off. Ceramic and crystal microphones have low output level and are suitable for hand held microphones held close to the speaker's mouth.

**Wireless Microphones**
A wireless microphone will give you the maximum flexibility, allowing your subject to move about without a wire following. The system will include a transmitter, worn by the subject, and a receiver connected to the mike input of your camcorder. Most DV camcorders have a 1/8-inch miniature jack, so make sure the microphone system you purchase matches this jack or has a converter for a compatible connection. Low cost wireless microphones can be prone to introducing noise, so only purchase a system you know functions well. Professional equipment can be very expensive, but there are consumer grade systems that are adequate.

Sony has a low cost WCS-999 wireless microphone that supports a lapel mike on the wireless transmitter and a second lapel attached to the receiver. This is ideal when conducting an interview. The interviewee wears the wireless transmitter and the Interviewer wears the receiver. Keep in mind the receiver has to be close to the camera.

Use Earphones
Always check your audio feed with earphones. While external microphones give better quality audio, they introduce more variables that can cause bad audio. The person operating the camcorder should be wearing earphones anytime the tape is rolling. This will allow the user to catch audio problems immediately and eliminate the possibility of getting back to the editing station with no audio or noisy audio. Imagine having to re-shoot because the microphone switch was in the off position.

**CAPTURING THE VIDEO**

**Introduction**
In videography terms, the word production refers to the actual capture of video. There are production techniques that will insure your finished video product has a professional appearance. Understanding a few basics about framing, appropriate camera movement, and capturing extra content can improve your video.

The material covered here only touches on a portion of the very large study of composition within film and photography. To learn more explore some of the content in Ron Whittaker's online course in Television Production: [http://www.cybercollege.org/tvp_ind.htm](http://www.cybercollege.org/tvp_ind.htm)

Composition and Graphics
- **22. Setting the Scene** ([tvp022.htm](http://www.cybercollege.org/tvp022.htm))
- **23. Photo Composition Elements-I** ([tvp023.htm](http://www.cybercollege.org/tvp023.htm))
- **24. Photo Composition Elements-II** ([tvp024.htm](http://www.cybercollege.org/tvp024.htm))
- **25. Photo Composition Elements-III** ([tvp025.htm](http://www.cybercollege.org/tvp025.htm))
Framing

Framing refers to the camera operator’s ability to determine how much is visible in the field of view and how close the camera’s subject appears to the viewer. The field of view can be impacted by both the distance of the camera to the subject and the zoom setting on the camcorder. Effective framing contributes to a video project’s ability to engage the viewer, adding variety to an otherwise static shot. It is useful to think about framing techniques (when the subject is people) as producing wide, medium, and close shots.

Wide Shot

The Wide shot (sometimes called a long shot) is often used to introduce the viewer to the site as a whole before cutting to closer framing. When used for this purpose, the video is referred to as an establishing shot. For example, before showing a close-up of a teacher talking to students, one may want to show the classroom as a whole. The viewer will then understand much more about the close-up. Wide-angle shots can contribute to a viewer’s understanding of scale. For example, when a camera is zoomed up close to a student the viewer might not know her desk is too big or small for her/him. If a shot has more than one subject, it will be important to return to a wide shot occasionally to show the actors’ relative position to each other. Do not stay on the wide shot too long as medium and close shots will engage the viewer for longer periods of time.

Medium Shot

The medium shot of a subject is usually waist up (assuming the subject is a person). This type of framing of the subject will eliminate many visual distractions from the video making the viewer feel that they are standing close to the subjects. A medium shot is also appropriate for capturing small groups of people in close proximity, such as students sitting at a common table. When moving from a wide shot to a close-up, include a medium shot. This will help the viewer make the transition and make it clear the camera hasn’t moved to a new scene.

Close Shot

The close shot, sometimes called a tight shot, is usually a bust shot or closer. This type of shot can be very effective for capturing reactions, feelings, or detail if your subject is inanimate. When the final distribution format is web video, a close-up is the preferred framing. There will be occasions when an extreme close-up can make an impact. An example might be to emphasize surprise or other emotions. Fill the entire field of view with just the head of your subject. There may be creative reasons to begin with a close-up before revealing the medium or wide angle shot as an explanation.
Cut-aways and Cut-ins

Introduction
Imagine watching a talking head online, for two minutes, describing the setup for a classroom activity. Now imagine the same clip of the speaker with frequent cuts to video footage taken in the classroom showing students actually participating in the activity. The audio track for the speaker continues, but while the viewer listens they are visually engaged with examples that bring the words to life. This technique is helpful, not only for variety, but often adds to the clarity of the message. While this video switching technique is an editing procedure, it is important to think about it while planning and during the production phase so that you capture the required extra footage. The cut-away and cut-in are two of the most useful techniques for making your projects look professional.

Cut-in

The cut-in differs from the cutaway in that the video cuts to something visible “in” the main scene. For example, a student might be captured explaining the use of a graduated cylinder in the science lab. The video can cut “in” to a close-up of the graduated cylinder and then back to the speaker. Again, the audio track from the main video is continuous. A cut-in can add to the clarity of a segment or simply be used to break up the video for variety. The video for the cut-in can be captured at any time, but it will be important to pay attention to continuity. In the example of the graduated cylinder, make sure the cylinder is being held at the same position, height, and angle as in the wider shot.

Cutaway

The cutaway is a switch from the primary video source to a second video source outside or “away” from the current scene. It is important that the audio track from main video continue during the cutaway scene. The audio from the cutaway scene may be included but at a reduced volume. The cutaway shot may be captured in the same location or may be from a totally different site. A cut to video in the same scene but with different camera angles can make the viewer feel they are in the scene following the action by looking around. In a one-camera shoot, the footage to be used for the cutaway can be captured before or after the main video clip or it may even come from footage that you have on file.

Covering Problems

Make sure the footage for cut-aways and cut-ins is listed in your plan before arriving to do the shoot. It is also good practice to shoot extra footage, just in case it is needed during the editing process to cover problems. For example, it may not be apparent until the editing phase that the camera lost focus for a moment, or maybe someone walked in front of the camera. If extra footage has been captured, then it can be used in a cut-away or cut-in to cover the problem. Before or after the main shoot, take time to capture footage of the environment both within and outside of the main scene. Capture footage from behind an interviewer’s head looking at the interviewee. Capture footage showing the subjects nodding or smiling. Take note during the shooting process of any objects which might be used for a cut-in and capture them as well. It is even a good idea to capture 30 seconds of ambient room noise. This audio track can be added to cover audio problems such as noise from a loose microphone connection. If you decide to insert a still image, using this background noise will make the transition to the still image and back less disruptive.

Camera Movement

Introduction
Camera movement can be the result of actually moving the camera or an apparent movement when using the zoom control. Camera motion should only be used with a purpose and in a manner that is not
visually disturbing. Walking around the room with a camera or frequent panning between speakers can distract the viewer from the intended message. While it is not unusual to see professionals use camera movement, they have access to equipment beyond the consumer grade camcorder and tripod. Camera movement should be a rarely used method when using consumer grade equipment. The three primary camera movements are the zoom, pan, and track.

**Zooming**

155_zoomout2.mov - video/quicktime

A zoom refers to using your camera controls to change the focal length, resulting in a telescope like magnification of the view. While some consumer camcorders support a smooth-slow zoom, most produce a more jerky result. The recommendation is to zoom only for a specific purpose such as to emphasize size or to indicate entry. Zooming can be distracting unless it is done for a purpose. Cutting between a series of closer and closer shots will be easier to watch and accomplish the same effect.

**Panning**

panforpurpose_300.mov - video/quicktime

Panning refers to sweeping your camera lens across the scene horizontally or vertically. Panning can be a distracting or even disorienting technique. Pan only for a specific purpose such as to show size. For example, while a speaker describes a classroom setup, a cut-away to a slow pan across the room might be appropriate. Never pan just to change the framing unless you will be able to edit out the pan.

Attempting to pan with a hand held camera or low cost tripod head would detract from the professionalism of a video. A good tripod head provides an adjustable and constant resistance to movement preventing jerky changes in motion in a horizontal or vertical pan. Even with a good tripod it takes experience to pan correctly.

If you are creating a studio environment you may want to consider a crane mount, which can work in tandem with a heavy-duty tripod. To see an example, check out the Skycam Jr at DV Creators.net.

**Tracking**

Tracking refers to following moving objects within the scene by actually moving the camera at the same rate. This gives the viewer a feeling of walking or riding along beside the camera’s subject. While this is common in professional video, the professional has equipment that you may not. The typical process for tracking involves building something similar to a small railroad track upon which the camera and tripod roll. If you would like to try tracking, David Pogue in *iMovie2 The Missing Manual*, has an innovative suggestion. Attach your tripod to a wheel chair and roll parallel to a walking person while taping. Certainly, you can also walk and hand-carry your camera if that is the effect you are after.

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**Integrating Still Images**

**Introduction**

An interesting technique that is very common in instructional video is the integration of still images. These images can be used for cut-aways with an underlying audio track or as the primary source of video, such as in an annotated slide show. The video might be from scanned photographs, digital cameras, or by capturing video from a computer LCD screen. On the Macintosh platform, iPhoto makes it possible to import directly to iMovie during the editing process.

**Using Motion With Stills**

By pointing the camera at an enlarged photo or painting while slowly panning, or even slowly zooming, you can give the illusion of motion to an otherwise static object. For example, panning across a picture of a campus photo with an audio description of the learning environment would be visually engaging.

There are also software tools that create this effect with digital stills. On the Macintosh platform, the combination of iPhoto and iMovie 3 allows editors to add Ken Burns pan and zoom effects with digital photos.

**Integrating Stills with Motion Video**

Still images integrated within segments of motion video can add variety and focus. Think about how often TV programs end by moving from video to a still for a few seconds to highlight a character. The
The illusion of animation can be created by quickly cutting between stills.

Images imported to iMovie can be the standard aspect ratio of 640 x 480. If they are larger, iMovie will take care of resizing down. If they are smaller, iMovie will expand them to 640 x 480, which could result in a grainy appearance.

If you are editing in Final Cut Pro, you can import Photoshop files complete with layers. Before trying this, read DV Creators.net "Tiplet' From Photoshop to Final Cut Pro. [http://www.dvcreators.net/visual/]

Capturing the Contents of a Computer Monitor
Showing student use of a computer is a common requirement for educators. If your laptop or desktop or CPU has S-video output, you can simple dub your demo to your camcorder in VCR mode. Then capture as a DV file in the normal way.

Standard CRT type monitors usually display a rolling bar that can be distracting in your finished video project and should be avoided.

LCD screens don't usually exhibit this flicker problem. To capture a demo directly from the LCD screen try putting the camcorder in Macro (close up) mode, mounted on a tripod, and focus on the LCD screen. Using this technique, any software or application software demonstration can be captured. Don't necessarily try to show the whole screen, but rather zoom in to what is most important. If the screen has a great deal of white, manual exposure control will most likely be needed to optimize the video quality.

EDITING TECHNIQUES

Introduction

Video editing is about taking all the video footage you have captured and telling a story. This requires that you address the following:

- Review raw footage
- Crop video to required segments
- Sequence shots
- Add audio track(s)
- Add transitions (audio and video)
- Prepare for Distribution

There are many concepts and skills for a video editor to learn. We will focus on learning when and how to use cuts and transitions as well as understanding continuity issues.

The Art of Editing

To Tell the Truth?
Think of editing as using video, audio, stills, and creativity to tell a story from beginning to end. Don't be afraid to bend reality to some degree. Time is important to the viewer. They will not expect, in most cases, for the video to be an exact copy of what really happened. For example, it is common practice to use editing to compress time by cutting between key clips that communicate what happened. By using slow motion or by sequencing multiple views of the same time segment for clarity, time can be expanded. There are times when it is important to show the action as it happened such as maintaining authenticity in case study video.

Divide Your Project into Scenes
Think of a project as broken into "scenes," with each scene appearing as one block of continuous time. Use simple cuts, rather than transitions within a scene. This will give the appearance of real time video even if the content was not captured continuously. Viewers should feel as if they are watching the scene...
in its entirety, from beginning to end.

**Effective Cuts**

**Introduction**
The straight cut is the most frequently used method of switching between two video shots. A straight cut means the video simply switches immediately with no fades, dissolves, or video motion. The cuts within a scene should be hardly noticed by the viewer if done correctly. However, choosing the point at which to cut between two video segments is somewhat of an art. The underlying goal for professional cuts is to maintain the perception of continuous time. As with any art, practice will be the best route to success, but there are a few tips and techniques that will shortcut the process. These involve for the most part concepts of continuity in action, connected sound, direction of travel, location, and camera setup.

**Direction of Travel**
Maintain continuity for direction of travel between cuts. For example, if you are cutting between a wide shot of a person walking to a close up shot of the same action, then the person should be walking in the same direction. "Direction of travel" mistakes are easy to make when the shots are captured at different times. Breaks in directional continuity can be distracting and can keep your video from being perceived as realistic.

**Continuity of Location**
Location continuity is determined by consistency of camera angle, lighting, and audio. If the shots are captured at different times, it may be necessary to take notes about the scene setup to maintain consistency. Within a scene, it is rare to cut between a video segment of a subject or subjects to another take of the same subject(s) without using a cut-away between the segments. To do so would make the video appear to jump and give the perception that time was not seamless. This mistake is called a jump cut.

**Continuity of Sound**
The audio will play a crucial role in the illusion of continuous time. When possible, there should be a continuous audio track, even though the video track might be cutting between various shots. Audio helps the viewer make the transition between different video shots. This is why professionals often use audio leading the video. For example if a car is passing the camera, the audio from the car will be heard a second or two before the car is seen. This makes the cut to car shot seem less abrupt and connected to the scene as a whole.

**When and Where to Cut**
Cuts will seem more natural if they are motivated. For example, a cut might occur to reveal a different camera angle that provides more information. Switching between two characters as they exchange dialog or react to each other will appear natural. A cut may be motivated by a movement on the part of a subject. If a subject begins to get up from a chair during a close-up shot, a cut can realistically be made to the subject standing in a wide shot. A cut may occur when an off-camera sound is heard. A great way to learn the art of choosing realistic cut points is to watch TV during a sitcom and take notes. Pay particular attention to how the audio track is handled to help cuts seem natural.

**RESOURCES**

**Learning More Online**
- The "Unofficial" iMovie FAQ [http://www.danslagle.com/mac/iMovie/iMovieFAQ.html]
- Television Production [http://www.cybercollege.org/tvp_ind.htm]
- A Comprehensive On-line Cybertext in Studio and Field Production
  By Ron Whittaker, Ph.D.
- Dvcreators.net [http://www.dvcreators.net/sitemap/]
  The Dvinformation section of the Dvcreators.net site has tips and techniques covering: production, post-production, and delivery
- Videography.com [http://www.videography.com/]
Publications on Videography
- IMovie 2 the Missing Manual [http://www.oreilly.com/catalog/imoviemm2/]

Multimedia Learning
- Final Cut Pro Powerstart [http://www.dvcreators.net/products/fcpps.html]
- The DV Guys [http://www.dvguys.com/] (weekly live audio webcast on digital video)
- The Intellectual Assistant for Final Cut Pro [http://www.intelligentassistance.com/FinalCutPro/IAforFCP.html]

Final Cut Pro Online Communities

iMovie Online Community
- Yahoo Discussion Group [http://groups.yahoo.com/group/iMovie-List/]
- Apple's iMovie Discussion Area [http://discussions.info.apple.com/webx/imovie]