

VIDEO TECHNIQUES

MC 4324: VISUAL STORYTELLING

GENERAL VIDEO TECHNIQUES

People invariably make the same sets of mistakes when they first start shooting video:

- Trees or telephone poles sticking out of the back of someone's head
- Interview subjects who are just darkened blurs because there was bright light in the background
- Boring shots of buildings with no action

Here are some shooting tips to help you avoid some of these common mistakes. I recommend that you go out and shoot some video first, and then read through these tips while reviewing your footage to drive home what you need to avoid.

PLANNING YOUR SHOOT

Talk over your shoot with other members of the production team and make sure you're clear on what shots you need to tell the story. If you're on your own, write up a list of shots you need. Write the story beforehand in your head, and list the elements you want to get video of to do the story. Think about what's going to look good visually, and how your shots are going to come together sequentially. Try viewing your piece as a skeleton, and you're shooting the flesh for all those bones.

CHECK YOUR AUDIO

Be sure to plug a set of headphones into the camera and check your audio to make sure you're getting an audio feed. It's easy to forget to plug an audio cord into the camera or to properly set the audio level - and wind up with great video but no audio to accompany it. Audio is just as important as video.

SHOOT SELECTIVELY

Think before you shoot and don't waste tape. Be aware of what you're shooting and when the tape is rolling. Don't roll tape unless you're taking a shot.

For example, don't roll tape when you're changing from one shot to another or focusing. Wait until you have the shot you want to roll tape on. That way you'll save a huge amount of time later when you're capturing your video into a computer and you won't have to go through a

hour-long tape with a lot of junk to find the 20 minutes of shots you want. You'll save money by using less tape.

However, when you're shooting action sequences where things are rapidly changing, you may want to continue to roll tape as you change angles to prevent the loss of a valuable shot.

SHUT UP WHEN YOU SHOOT

When you press the record button, **shut up already!** Keep in mind that when the camera is rolling it picks up all the ambient sound, not just what you're focusing on. And you won't be able to separate the unwanted audio out in the editing process. Don't talk while the camera is rolling, either to yourself or with other members of your team, and no humming.

If you're with a reporter, make sure they aren't talking in the background while you're shooting. The microphones are very sensitive and will pick up the background audio. This is especially important when you're shooting B-roll like natural sound, such as the noise of a busy street or a nature scene, where the sound is critical to the shot.

HOLD YOUR SHOTS

Hold your shots for at least 10 seconds, before you pan, zoom or go onto another shot. That way you'll be sure you have enough video of a scene to work with later when you do your editing. When you're starting out, silently count out the 10 seconds to yourself - "1,000 and one, 1,000 and two, 1,000 and three..." - to make sure you've held a shot long enough.

Remember that you can always take a 10-second clip and make it a 2-second clip during editing, but you can't take a 2-second clip and make it into a 10-second clip.

EXCESSIVE PANNING AND ZOOMING

Don't constantly pan from side to side or zoom in and out with the camera - hold your shots and look for the one moment that's really captivating. If you're constantly panning and zooming, the one shot you'll really want to use will lose its impact with all the movement by the camera.

Instead start with a static, wide angle shot, and hold it for 10 seconds. Then make your move to zoom in or pan, and hold the next static shot for an additional 10 seconds. This will give you three useable shots - the wide-angle, the close-up and the zoom in between - to choose from in the edit room.

This is especially important for video you're using on a Web site because video with a lot of movement - such as what's created with panning and zooming - doesn't display well on the Web. Video clips need to be compressed to play on the Web, and that means if there's lots of movement in your clip - such as pans and zooms - it will appear choppy and slow.

Similarly, to get a close-up it's better to keep your camera set to a more wide-angle view and move the camera closer to the subject of your shot, than to have the camera farther away and

zoom in for the close-up. A telephoto shot using the zoom feature will accentuate movement by the subject and make the shot appear shaky.

SHOOT IN SEQUENCES

This is especially true when shooting B-roll such as crowd scenes or nature shots, rather than a static shot of an interview with someone. Remember that you will be determining what the viewer sees and how the story unfolds, so try to shoot discrete segments that you then can assemble into that story when you're editing. Here's an example: Think of different scenes, as in a movie. Each of those scenes is made up of sequences. In each sequence, you need to follow the action, and shoot wide, medium and close-up.

Say you want to capture a person arriving at work in the morning on her bicycle -- that's one sequence. It could be made up of the following shots:

- The person pulling up to the building
- Getting off the bicycle
- Chaining the bicycle to the bicycle stand
- Taking off gloves
- Taking off her helmet
- Tucking gloves into the helmet
- Walking into the building

Every little detail is important. You can't shoot enough details. In fact, a good ratio to shoot for (literally) is 50 percent close-ups and extreme close-ups, 25 percent medium shots, and 25 percent wide shots.

It might break down like this:

- A wide shot of her arriving.
- A medium shot of her getting off the bicycle.
- A close-up of her pushing the front wheel of the bike into the bike stand.
- A close-up of her chaining the bike to the stand.
- An extreme close-up of her taking off her gloves.
- An extreme close-up of her eyes as she looks at her hands while she's taking off her gloves.
- A close-up of her taking off her helmet and tucking the gloves into it.
- A close-up of her straightening her hair and looking at the building.

- A medium and wide shots of her walking into the building with the helmet tucked under her arm.

FRAMING AND COMPOSING YOUR SHOTS

Be aware of composition in your shots and how you frame your shots, particularly with interviews. For example, avoid a shot of a person with a plant or pole in back of them. It will look like the plant or pole is growing out of the back of the person's head.

When shooting **interviews** pay attention to your surroundings and don't be reticent or shy about rearranging furniture, moving things on a desk, pushing plants out of the frame of your shot, etc., to improve the setting, or asking the subject of your shoot to change positions so you properly frame the shot. And if you're having technical problems, don't be afraid to take charge and stop the interview until you can properly set up the shot. You would never do this when shooting B-roll, just interviews.

HEADROOM AND NOSEROOM

Leave the proper amount of noseroom and headroom in front of and above the person you're shooting. For example, don't have a shot where there's excessive empty space above a person's head. That's just dead space. There should be just a little room above a person's head in a shot. It's better to have that room below the person's face, space you then could use when you're editing the video to add a title with the person's name. But don't have the shot too low where you crop the top of the person's head. And if you're shooting a person standing, don't chop them off at the knees - get their entire body in the shot.

One approach is to remember the rule of thirds:

- One third of the frame should be above the person's eyes
- One third of the frame should be the person's face and shoulder area
- One third of the frame should be the person's lower torso.

And if the person is looking to the side, add space in the direction in which the person is looking, in front of their nose.

DEPTH OF FIELD

Be aware of ways to increase the sense of depth within your shot, since video images are inherently flat. If you're shooting someone, try to include other objects in the background or foreground that give the viewer a sense of depth. That way the interview subject won't appear to be just a two-dimensional object on the screen. Also remember that a wide angle shot will provide a much better depth of field than a telephoto shot where you've zoomed in on your subject.

Depth of field is the distance in front of and behind a subject that remains in focus. The distance that is in focus is always one third in front of the subject, between the subject and the camera, and two thirds behind the subject, between the subject and the background.

Depth of field is controlled by three factors:

1. *Exposure*: The brighter the light, the smaller the aperture of the camera and the greater the depth of field. Conversely, indoors or in dimly lit areas with a wider aperture, the depth of field is smaller. Outdoors during the day, the depth of field is often great and everything (with the exception of narrow telephoto shots) is usually in focus from a few feet from the camera to the farthest distances.
2. *Distance*: The farther away the focal point, the greater the depth of field. The closer the subject gets to the camera and the nearer to the focal point, the smaller and smaller the depth of field gets.
3. *Focal length of the lens*: The wider the angle of the lens, the more it's zoomed out, the greater the depth of field. The narrower the angle of the lens, the more it's zoomed in, the smaller the depth of field.

CHANGE ANGLES AND PERSPECTIVES

Try to change point and/or angle of view after every shot. Look for interesting perspectives. Don't shoot everything from eye level - it's boring. Especially try shots where you hold your camera close to the ground and shoot up toward your subject. The small size of digital video cameras makes these shots very easy to take.

For example, if you're shooting a scene like people walking on a sidewalk, hold the camera low to show their feet moving, rather than straight-on shots of their faces. Or if you're shooting someone working at a computer terminal, take one shot from over their shoulder, then another that is a close-up of their hands and fingers using the keyboard and mouse, then a shot from over the person's other shoulder, then a low angle shot looking up at them and then a facial shot. Or hold your camera above your head to get a different perspective on a scene.

Do a close up shot, because that often provides a more intimate view of a person. This is especially important with video on the Web, because the video viewers use small windows and wide-angle shots won't display much detail.

Don't just rely on zooms to get these different perspectives - move the camera closer or farther away. If you take shots from these different perspectives, when you edit your video you'll be able to put together a sequence of 4- or 5-second shots of your subject, rather than one 20-second shot from a single perspective.

GET PEOPLE IN YOUR SCENES

Try to get people in your shots, which almost always makes the video more interesting. Don't do a static shot of the front of a building - try to include people walking in and out to animate the scene.

TRIPODS FOR STEADY SHOTS

Always try and use a tripod to get a steady shot, particularly if you're shooting something that is not moving or a formal interview. If you don't have a tripod or you're doing a shot where you'll have to move quickly, then find something to steady your camera - i.e. lean against a tree, put the camera on top of a trashcan, etc. If you must shoot without a tripod or other support, shoot a wider angle shot. The wider the focal length, the steadier the shot.

ANTICIPATE ACTION

Anticipate action by trying to predict where the subject/action will go, and then be ready to shoot it when it moves into the frame of your shot. Think ahead and get positioned for the action that's to come.

Let action happen within the frame. Don't constantly move the camera in a futile attempt to catch everything. And don't be afraid to allow your subject to move out of frame, rather than trying to follow them with your camera.

This is especially important if you're taking a shot of a person who is walking and then later another shot of the person sitting down. If you follow the person while they walk with your first shot and always keep them in frame, and then cut to second shot of the person sitting down, it can create a mental disconnect for the viewer as to how the person got to the second position. If instead you show them walking out of the frame in the first shot, then it's logical to the viewer that the person would be seen in the next shot sitting somewhere else.

INTERVIEWS

Ask the person you're interviewing to look at you, not at the camera. Try to avoid a straight-on shot - shoot the person from a slight angle to the left or right.

Don't use the zoom feature to get a close-up shot of the person - that accentuates movement. Instead, move the camera a little closer to the subject.

Don't have your interviewee sit in a chair with wheels or that squeaks. And watch out for nervous activity that creates noise - like someone jangling change or keys in their pocket. Stop your shoot, point it out to them, and then start shooting again.

Don't do a pre-interview off camera where you tell them the questions you'll be asking beforehand. It makes them sound stilted and canned in their responses when the real interview begins. Just give them a general idea of what you'll be discussing.

When you start the interview, have the camera roll for a few seconds before you ask your first question. And during the interview, relax and listen. Don't nod too much or make gestures.

SIT DOWN INTERVIEWS

When doing a sit-down interview with a subject where the reporter will be asking questions of the person, start with a set-up shot from behind and to one side or the other of the reporter that focuses on the person talking while the questions are asked.

Because this shot will show the person at an angle, leave extra room in the shot in the direction the person is looking (rather than centering the person in the middle of the frame). Then do a wider angle shot from the same position that includes the reporter while the subject of the interview is responding to a question.

Finally, move your camera to get a frontal shot of the reporter listening to the person - which is called a reverse shot or cut-away. This is shot from behind the person being interviewed. And again get both a close-up and a wider angle shot. It's important that in this reverse or cut-away shot, you position the camera on the same side of the room as it was when you did the first shot from behind the reporter.

So visualize that there's an axis that runs from the interviewee to the reporter. When you are taking your first shot from behind and to one side of the reporter, stay on the same side of that axis when you move the camera to do the front-on shot of the reporter.

You generally do not film the reporter actually asking the questions - just the answers of the interviewee and/or the reporter listening while the questions are answered.

MICROPHONES

If you're using a handheld microphone, hold it about 5-6 inches below the person's mouth, while also making sure that the microphone is not in the frame of your shot. And tell them to try to ignore the mic and concentrate on the camera.

If it's noisy, then use a lavalier clip-on microphone to reduce the ambient sound. But watch for necklaces or chains on a person's neck, or buttons on a shirt, that could rub against the lav mic and create noise.

With a lav mic, you'll need to "dress the mic" - properly attach it to the person you're interviewing. Ask the person to run the cord to the lav mic up the inside of their shirt (so the wire won't show in your video). Then clip the mic to the outside of their shirt, about 5-6 inches below their mouth. Try to center the mic as much as possible. If you have it too far to one side, it won't pick up the audio well if the person then tilts his/her head to the other side while talking.

Use this same procedure if the person is wearing a t-shirt, running the cord up under the shirt and clipping the mic near the top of the shirt. If the person has a necktie, run the wire down the back of the necktie and through the little label on the bottom back of the necktie.

If it's windy, the lav mic will pick up the sound of the wind. In this case try to clip the mic closer to the person's mouth, or switch to a hand-held microphone with a windscreen on it that muffles the noise of the wind.

AVOID HIGH CONTRAST IN LIGHTING SITUATIONS

Avoid shots of areas that have high contrast such as dark versus light settings, or bright sunlight and shadows.

For example, don't place an interview subject against a bright window or white wall or with sunlight behind the person. This backlight is problematic for the automatic exposure feature of the camera. If the camera focuses on the light in the background, then the face of the subject will be darkened and indistinguishable. If the camera focuses on the person's face, then the background will be washed out in light.

It's usually best to shoot with the sun to your back. If the sun is directly overhead, hold your hand over the top edge of the camera lens. This will in effect extend the sunscreen and avoid having the camera misread the amount of sunlight.

MANUAL EXPOSURE

The auto exposure on digital video cameras is generally very good at setting the correct lighting. And most difficult lighting situations should be solved first by changing the position of the camera or the subject - such as not shooting into direct sunlight. But there are occasions when you'll need to manually adjust the exposure on your camera.

One example is on a bright day where there's lots of movement and light contrast in front of your camera, such as buses passing by with large billboards on their sides that reflect the bright sunlight. The camera will change its exposure in response to these changes. Or if you have to take a shot of a person from a certain angle, and there is bright light behind the person.

In these cases, aim your camera at the light setting you want for your shot and then switch from auto to manual exposure. For example, if you're shooting an interview with someone, zoom in on the person's face, hold the shot there and then switch from auto to manual exposure. The camera then will retain or lock in whatever setting you selected throughout your shoot, despite any changes in the lighting.

GET ALL THE SHOTS YOU NEED

Make sure you get all the requisite set-up shots, cutaways, and so on, even if you don't think you'll use them. They may come in handy in the edit room.

Start with an establishing shot - such as video of the person who is the subject of your story - and then remember to get the other kinds of shots you may use to supplement that in your final video.

The latter is called B-roll, which refers to the earlier days of film when you had two rolls of film - A and B - and you had to edit them together. A-roll is the main subject of your shot, invariably with audio such as an interview with someone. B-roll is the background video for your film, often just video over which you'll lay an audio track (such as the person talking in the A-roll). Don't forget to shoot a variety of B-roll.

Another type of shot to look for is natural sound (called "nat sound"). This is video that has some natural background noise - traffic on a street, birds chirping in a park, etc. This audio can add depth and impact to a two-dimensional videotape.

LABELING YOUR TAPES

When you are doing a shoot that requires more than one tape, be sure to label each tape at the scene. And pick a label that will make it easy to identify later. There's nothing more frustrating than starting to edit and not knowing which tape is of which shot or what is on each tape.

Keep each mini-DV tape in its plastic box to avoid dust getting into the tape. You can shift the little white switch on a tape from record mode to save mode to avoid accidentally recording over a tape on which you already have video. If you want to later record over the tape, just move the little switch back to record mode.

HANDLING THE CAMERA

The first essential thing to understand is the safe handling and proper use of the digital video camera. Modern DV cameras are extraordinarily small, have tiny, delicate moving parts, and near microscopic electronic components. These cameras can be very fragile, and it is of utmost importance that they be handled carefully.

Carry them with a strap whenever possible and support them with two hands. They should never be swung around or left dangling unsupported. Always treat the components gently. Insert the tape carefully. Close the tape compartment door firmly but don't slap it shut.

The lens cap should always be put back on the camera when it's not in use. Nothing should touch the lens because its outer coating can easily be scratched or marred, or worse, the glass itself could be nicked. Tiny imperfections in an already tiny lens are greatly magnified on the screen.

CHANGING THE BATTERY

All cameras mount their batteries in a slightly different way and almost no cameras use batteries that can be used with another brand of camera. This means that you always need to make sure the right battery is being put on your camera. The battery usually snaps in place in only one way. There's usually a button or slider that you need to press or slide to release the battery to take it off.

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USING A TRIPOD

How you mount the camera to a tripod varies from tripod to camera.

Usually, you remove a plate on the tripod and attach it to the camera before you fix the camera and plate to the tripod. The plate usually screws into the base of the camera with a standard-sized screw. The plate often needs to be affixed to the camera in one direction so that the camera is pointed in the right direction when it's on the tripod. This direction is usually engraved on the tripod plate. Don't screw the plate into the camera so tightly that it cannot be undone without a wrench.

Also, don't screw the camera onto the tripod by spinning it around the screw while the plate is mounted on the tripod. The screw for the plate often comes in two stages, a smaller inner screw that attaches the plate to the camera and a larger outer ring that tightens the plate against the bottom of the camera.

Do not screw the small, inner screw as far into the camera as it will go. This can easily crack the base of the camera and damage the electronic boards inside the body. Tighten the inner screw a few turns so it's well inside the camera body, then tighten the outer ring to secure the plate to the camera.

Attach the camera and plate to the tripod. Make sure it is on securely, not simply balanced on the tripod, before you let go of the camera. When removing the camera from the tripod, make sure the plate is returned and secured back on the tripod. Do not leave it attached to the camera.

TURNING ON THE CAMERA

Once the camera is secure on the tripod, turn it on. On many cameras, this is a two-step process, one switch that selects Camera or VTR (Videotape Recorder) mode and another switch that turns power from standby to fully on.

Many cameras automatically shut down if they are left powered on for a few minutes with no activity. Connect the camera to a power supply. The power supply usually attaches to the camera battery area.

Take extra care when the camera is attached to an electrical outlet, paying particular attention to the power cord that inevitably snakes across the floor. Ideally, the power cord and power supply cable are taped to the floor so that they won't be tripped over.

Once the camera is turned on, remove the lens cap.

ZOOMING

An important first step in learning about the camera is to explore the zoom capabilities of the camera, from its widest angle view to its narrowest.

Zooming should be used sparingly as it is very difficult to do well. It's almost impossible on small consumer cameras that usually do not have power zooms. They simply have two speed zooms, moderately fast and moderately slow. True power zooms are pressure sensitive and can go from very, very slow, to very quick.

In many professional cameras, the zoom servo mechanism can be disengaged and the zoom crashed full in and full out with a flick of a lever. This can be very useful.

Although most digital video cameras have digital zoom capabilities, these should be switched off (usually by using a menu function) and should not be used except under unusual circumstances. Using the digital zoom causes pixelization (mosaic-like blocks when the pixels are expanded beyond their true size).

It is worthwhile to see what happens when you use digital zoom and how it is displayed in the viewfinder. While in the menu function of the camera, take the time to explore any other noteworthy features that your particular model offers.

AUTOMATIC FUNCTIONS

Most consumer and even prosumer cameras become fully automatic when they are first switched on. All of their control functions are automated.

Many cameras also have a selector switch that leaves the camera in full auto mode at all times. This should not be used. The automatic functions give the cameraperson about a 75% chance of getting a good picture. The problem with automatic functions is that they're always automatic, which invariably means that the image is constantly changing to adapt to the scene. The main camera functions are in constant and annoying flux. The three main functions this automation affects are focus, exposure, and white balance.

FOCUS

Here the problem is that the camera is constantly trying to find the focal plane for the subject in the center of the screen (though some cameras allow you to offset the subject).

This is not much of a problem outdoors on a brightly lit day because the depth of field can be very great, from very close to the camera to infinity. Depth of field is how much is in focus. The focal point is set to a certain distance. An area in front of that point, between the camera and the focal point, and an area behind the focal point will all be in focus. This is the depth of field.

Generally, one third of the distance is in front of the focal point and two thirds is behind the focal point. Indoors or on overcast days, the depth of field can be very small. The problem is that unless conditions are ideal, the depth of field can be quite small and auto focus will be

constantly adjusting to try to find the right point. Even if conditions are ideal, such as outdoors on a bright day when you're taking a shot of someone across the street, this can be a problem.

For example, say a large, white truck rolls down the street between you and the subject. The auto focus will try to jerk the focus back to the new "center of interest." As soon as the truck is gone, the other side of the street will be out of focus and the camera will spend a moment or two readjusting itself. This makes for an unpleasant, unsightly, and unacceptable image.

The way to get around this problem is to switch the auto focus off and use manual focus. This isn't as onerous as it sounds. Many cameras have systems to make this quite simple.

SETTING THE FOCUS

The most important point about setting the focus is that you should always do this when you are as tightly zoomed into the object you're focusing on as you can be. (Here's where that full manual zoom shows its value)

Setting the focus while you're fully zoomed in sets it as accurately as it can be set. Once you've set the focus, you can zoom back out to the focal length you want to use for your shot.

Do not try to set the focus without being fully zoomed in or the chance of getting the focal point correctly is almost nil. As soon as you try to zoom in on the subject, you'll see how far your focus was really off.

Many cameras have a button that turns on auto focus while the button is depressed. This is a very useful feature. The best way to use it is to zoom in as tightly as you can on the subject, press the button, and let the camera fix the focus accurately and tightly on the subject. As soon as it's settled in focus, release the button and zoom back out to the desired camera angle.

EXPOSURE

Here you have the same problem as with focus, but it can be more difficult to deal with and can make the picture unusable. In the situation in which you're shooting across the street, even if you set the focus correctly, the large, white truck would ruin the shot. The exposure would be set correctly, the truck would pass into the frame, and the camera's auto exposure would see a white screen, a very bright object, and immediately close down the exposure, darkening the picture to compensate. As soon as the truck leaves the shot, the scene will be too dark momentarily before it adjusts to the correct exposure. These sudden changes in exposure and focus are not acceptable. If you had the camera set to manual exposure and manually fixed to the correct exposure for the scene across the street, you would not be plagued by these changes of exposure. Having the truck overexposed as it drives by is more acceptable than the abrupt exposure changes.

The exposure changes don't have to be caused by objects as large as white trucks; even small things have a big impact on exposure. Someone unfolds a newspaper, opens it up, turns the page, closing it again. The camera reads this as a large, very pale object and shuts down the exposure momentarily. The resulting shot is ruined.

A similar problem often occurs when you take a picture against a bright sky. On a sunny day, this is not usually a problem. However, on a slightly overcast day when there isn't as much light falling on the subject, yet the sky is very bright in comparison (often white), the subject is turned into a silhouette, with no discernible facial features. If you're zoomed in tightly on the person's face and get a good exposure and see facial details with the camera on auto exposure, as you zoom out, the person suddenly disappears into the blackness of a silhouette. Again, this sudden change in apparent exposure is unacceptable.

The correct way to shoot this is to compromise. As with setting the focus, zoom tightly in on the subject, set the aperture (the opening that sets the amount of light allowed to pass through to the camera's electronics), and then zoom back out. As you zoom out, you'll probably see that the sky is too bright and probably badly overexposed, but that's better than the person's face disappearing into a black hole.

Ideally under such circumstances, you'd try to get some additional light on the subject with lamps or at least with a reflector.

SETTING THE EXPOSURE

You usually set the exposure by pressing a button and then adjusting the exposure up or down with a curling knob. A bar typically appears in the viewfinder to indicate the exposure. Some cameras display the exposure as an f-stop number.

F-stops are standardized settings for how open a camera's aperture is. The lower the number, the more open the aperture; the higher the number, the more closed it is.

WHITE BALANCE

This is the third automatic control and usually the trickiest to set, but fortunately it's the least likely to be problematic.

Light has color and different light sources are more predominantly one color rather than another. Indoors, tungsten lighting is normally quite yellow. It's rated in degrees of Kelvin, 3200 degrees Kelvin, 3200 degrees above absolute zero. This is a warm light. If you step outside, the light is much bluer and it has a much higher color temperature, usually about 5400 degrees Kelvin. Fluorescent lights can be anywhere in between, though they tend to be about 4000 degrees and are also likely to vary as they get older.

Our eyes don't see the difference; they quickly adjust or compensate for the differences. The camera is not so adept. Normally, it adjusts for the difference in color temperature. One problem is that some cameras are quite slow to do this and it takes them a few seconds or more to make the adjustment. This means you should be careful when you first step outdoors from indoors to give the camera time to adjust.

The other problem is that the camera can be subtly affected by the image it's pointed at. If someone is wearing a blue shirt, for instance, the camera may overcompensate, turning the person's face a slightly unnatural yellow.

The other problem is that there are occasions when you don't want the camera to adjust the color temperature. At sunset, for example, the color temperature decreases, becoming warmer and more yellow. You do not want the camera to adjust for this because it will take out the warm, sunset glow you're probably trying to capture.

SETTING THE WHITE BALANCE

Most cameras have an auto white balance setting and fixed settings for indoors and outdoors, one for 3200 degree tungsten lights and the other for 5400 degree daylight. These are good average settings and can be used in most cases, though heavy overcast often makes the image appear bluer than it should be.

Most cameras also have a manual white balance setting control. To set the white balance, you point the camera at a pure white card and press the white balance button. The camera adjusts itself to the color of light falling on the card, indoors, outdoors, or mixed.

Mixed lighting presents the greatest problem and is often difficult to overcome. Indoors, light that is falling from windows can throw an unpleasant blue cast over portions of the images or on contours it highlights. If possible, it's usually best to arrange the scene so that only one color temperature of light is falling on it. Closing the drapes and lighting the room is often the best solution. An alternative is to move the subjects to the window so that they are lit entirely with daylight. Try to avoid mixing color temperatures.

CAMERA ANGLES

Even at its widest, a video camera usually sees no more than about 45 degrees and at its narrowest about 5 degrees. In either case, this is far less than the 120 degrees or more that most people's peripheral vision is capable of. If the camera could see an image that was 120 degrees (and you can with a fisheye lens), the image would be incredibly distorted. Both the camera and our eye have spherical lenses. The difference is that we have a brain behind the lens that corrects for the optical distortion, while the camera does not.

The image a video or still camera produces is almost always distorted to a lesser or greater degree. In still photography, a lens with a focal length of about 50mm is considered a normal lens because it most closely approximates how we see the world. Every other lens and focal length on a zoom lens produces some degree of optical distortion. Camera operators and directors use this distortion to their advantage to emphasize certain elements and to de-emphasize others.

WIDE ANGLE VS TELEPHOTO

The wider the angle of lens, the greater the separation between objects. If you look down a street with a wide angle lens, the street looks wide and very long, wider and longer than it does in reality. If you look down the same street with a telephoto lens, a zoom lens that's all the way as tight as it can go, the same street seems much smaller and shorter in distance

Wide angle: If you're looking down the street and a car comes toward you, at first the car seems very small and far away. As it approaches, it suddenly rushes by, going from quite small to very large in a moment. This creates a tremendous sense of speed. You can see this all the time in coverage of car races.

Telephoto: If you shoot the same car coming toward you down the street, the car may take up a large part of the frame, but you have little or no sense of forward movement. The car seems to be standing still, perhaps bouncing up and down a little as it goes over bumps. The car seems to be moving very slowly.

LOW ANGLE

These lens distortions are further accentuated when the camera angle is changed. Shot from a low angle, looking upward with a wide angle lens makes an object or a person seem large. It also makes them seem important, domineering, and powerful, even heroic. This technique is often seen in sports events and rock concerts.

HIGH ANGLE

A higher angle, especially with a slightly telephoto lens, diminishes the subject, making the person seem unimportant or insignificant.

DUTCH

A Dutch shot is shooting with the camera tilted. It's commonly seen on MTV in music videos. (The term Dutch is a corruption of deutsch and refers to the tilting of the camera common in German expressionist films of the early 1930s.)

RULE OF THIRDS

If you look at a rectangular shape like a television screen, your eyes tend to look primarily at specific regions of that shape. You tend to look, not in the center of the screen as many people think, but along lines that run about a third of the way from the top and bottom of the screen and a third of the way from the sides.

What you may have noticed from the shot sizes is that after you've reached the top of a person's head, you then only see more and more of their body. The camera does not continue to show you more and more above the person's head. Usually, once the frame has reached just beyond the person's head, you never leave more than a couple of inches of extra room in the frame, called headroom.

What you have probably noticed about all of these shots is that the person's eyes usually fall on a line about one third from the top of the screen. This is the Rule of Thirds, that the object of interest is as much as possible placed on one of four lines, either one-third from the top or bottom of frame, or one-third from the left or right edge of the frame.

A subject's eyes are almost always placed as close to the top one third line as possible, or perhaps just a little below it. This rule is dictated largely by the shape of the television set, a 4:3 rectangle. This applies to widescreen framing as well, though the one-third side lines are farther apart.

THE SHOTS

Even though our vision takes in a very wide area, we generally only “look” at one object, person, or small group of people at a time. That's what the cameraperson does—tries to emulate the observer, to recreate what they would want to look at, and to narrow the view of the scene so the audience sees only what the cameraperson intends. The various shots have names that are used to describe them.

EXTREME CLOSE UP

This is a shot of an eye, a pair of lips, or a ring on a finger.

CLOSE UP

This is a shot from just below the neck to near the top of the person's head, often leaving some of the hair out of the frame.

MEDIUM CLOSE

This is sometimes called a bust shot. It goes from about the middle of the chest to just above the top of the person's head.

MEDIUM

A medium shot is a shot from about the hips to just above the head.

MEDIUM LONG SHOT

This is sometimes called a three-quarter shot, from below the knees to just over the top of the head.

LONG SHOT

This is one showing the subject's feet to just above the top of the head.

OVER THE SHOULDER / POINT OF VIEW

This shot is taken from over the shoulder of one person looking at the other party in a conversation.

REVERSE

A reverse shot is the opposite shot of the OTS. If one shot shows you the face of one person in the conversation, the reverse is an OTS that shows the other person. It is also a shot that looks in the opposite direction.

CROWD SHOT

This ranges anywhere from a small group of people to thousands in stadium. When shooting people, it is usually best to avoid having the frame cut them off right at the joints. For example, the bottom of the frame shouldn't be right in the Adam's apple, right on the point of the shoulder, or right at the elbows, waist, or knees.

These shot sizes are based on people, but they can refer to any object. The sizes are based on a relationship of scale. This means a close shot of a building may be a window, while a medium shot of the building would be half the building, and a long shot would show the entire structure. A close-up of a car might be a headlight, a medium shot the front half, and a long shot the whole length of the vehicle.

CAMERA MOVEMENTS

Pan: This is a horizontal movement of the camera, usually used to follow a moving object. Avoid panning across scenes or panning from one object to another. These are generally ineffective shots and difficult to edit. If you are going to pan, it's better to pan with something, following its motion. Also, make the move definitive so that it comes to a stop on something you want the viewer to look at, rather than a wide general scene.

Tilt: This is moving the camera up and down from being pointed downward to being pointed upward, or vice versa. Again, these moves work better if they're following something in motion or moving to a particular point, such as a flag or the top of a skyscraper.

Zoom: A zoom is an entirely artificial photographic movement that's created by changing the focal length of the lens. There is no comparable movement in human experience. Our eyes certainly don't zoom. Our eyes make a cut, looking from the wider shot to the closer view of something. Nothing marks amateur photographers more than the amount of zooming they do, so use the zoom movement sparingly. The zoom button on the camera should be used primarily to change the focal length of the lens and to change from one shot to another, not as an on-camera movement.

Track or dolly: This is a horizontal movement in which the whole camera is moved, usually on a tracked device on wheels. A track can also be a shot in which the cameraperson is walking

or it can be a shot from a moving vehicle. (Wheelchairs make excellent tracking devices because they're usually very well sprung) The term crab is also sometimes used specifically for sideways movements of the camera.

ZOOMING

If you're shooting a close-up of someone and the image is correctly framed so the eyes are on the one-third line and the camera is then zoomed straight out, the subject's head will end up in the middle of the frame. As the camera is zoomed out, the viewer will have to look lower and lower in the picture.

Because they will probably continue looking at the person, their point of interest will drift lower and lower down. The correct way to zoom out is to zoom slowly, tilting down as you go so that the subject's eyes maintain the same position in the frame while more and more of their body is revealed. This way the viewer is always looking at the same point in the composition, the eyes of the subject, which don't change position. This zoom can be a bit tricky to do and takes practice.

COMPOSITION AND FRAMING

With very few exceptions, you never frame someone so they are dead center in the frame, a perfectly symmetrical shape of head and shoulders in the rectangular screen. Usually, the subject does not look directly at the camera (news reporters, anchors, and presidents being the most notable exceptions)

When someone looks directly at the camera, they are speaking directly to the audience. This completely changes the relationship between the audience and the person inside the box, simply because they are being addressed.

More often, the subject is seen by the audience from an angle. The viewer is just an observer, an eavesdropper or voyeur, but not a participant, which is what happens when the subject addresses the camera and speaks directly to the viewer. Because the person being photographed is usually looking slightly to the left or the right of the camera, the person is looking in a certain direction, either from left to right or from right to left.

When photographing a person looking to the left or right of the camera, the subject is framed so that they are looking into the picture, not out of it. If they are looking left to right, there should be more room on the right side of the frame, leaving them space to look into. Conversely, if they're looking from right to left, there should be more room open on the left side of the frame for them to look into. This is called noseroom, and there should always be some of it.

The more in profile the subject is, the more they can be pushed to the edge of the frame. If the subject is looking pretty close to the camera, they're usually placed closer to the centerline of the frame. The farther they move to being in profile, the more they're offset toward the edge of the frame. If there isn't enough noseroom and if the subject is looking out the edge of the frame, the audience's attention tends to drift over their shoulder, as if anticipating that someone will come up behind them.

Noseroom is particularly important for objects in motion. When you're shooting a car driving by, the camera should lead the car so that the frame is always a little ahead of the vehicle. This way it looks as if the car is driving into the frame rather than out of the frame. It doesn't look good if the car gets ahead of the shot. It looks as if the camera is trying to catch up with it. The faster the object is moving, the more noseroom it needs.

When you shoot a car moving, you may not need to see more than the front half of the vehicle reaching almost to the middle of the frame. An entire half of the frame can be empty for the car to drive into. Framed like that the viewer gets a much greater sense of speed than if the shot is lagging behind.

BASIC DIRECTION AND SCENE ARRANGEMENT (180 DEGREE RULE)

This framing of the image gives a person's eyeline a direction—they're looking to the left of the camera (camera left) or to the right of the camera (camera right). This eyeline is the basis for all television, video, and motion picture direction. It's the fundamental rule that allows a scene to make visual sense.

Simply put, if someone is looking left, they should stay looking left, and if someone is looking right, they should keep looking right. This works if one simple rule is applied: Do not cross the Line. The Line runs through the scene, through the actors in a conversation, for instance. The director decides on which side of the Line he or she wants to place the camera. Once the decision is made, the camera has to stay on that side of the Line.

The camera can move anywhere in a 180-degree arc, but it has to stay on the same side of the Line. As long as it does, the actors will have the same relationships. If it changes it can disorient the audience. They don't know what to think. Has one person turned their back on the other? Are they leaving?

If you need to get the camera to the other side of the Line, the audience should see the shot in which the camera moves around the actors, carrying the viewer across the Line and establishing a new Line. In televised football games, you'll notice that the director goes to great lengths to maintain the directions on the field, with one team going in one direction and the other team going in the opposite direction. When the director has to use a shot that crosses the Line, a caption often appears on the screen telling you the angle has been reversed.

This rule of the Line applies to objects or people in motion as well. If the car is moving down the street in one direction, in subsequent shots, the car needs to be moving in the same direction or the audience will think that it's turned around. To get to the other side of the Line with a moving object, one method that works effectively is to place the camera right on the Line so that the object is either moving directly toward the camera or directly away from it. The shot that follows can then be on either side of the Line and the audience will accept it.