Chapter 4

Video Camera Operations

Objectives
After completing this chapter, you will be able to:

- Understand how white balancing a camera affects the picture.
- Summarize how depth of field contributes to composing a good picture.
- Identify the composition of each type of camera shot.
- Illustrate a variety of camera movements.
- Explain how a videographer can psychologically and physically affect the audience.

Introduction
While learning to operate a camera is not complex, becoming a talented camera operator requires dedication and skill. Great camera operators:

- Know the basic rules of composition.
- Know the capabilities of their equipment.
- Know the basic process of production methodology.

Professional Terms

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Composing Good Pictures

Composing good pictures begins with learning some basic principles. These basic principles are the foundation on which experience is built, and only experience can perfect camera composition skills.

One of the principles of composition is maintaining constant control over the camera. The camera operator should never let go of the pan handles and should always have the pan and tilt unlocked during a shoot, but with sufficient drag engaged to handle any movement necessary.

Another major principle of composition is that anything not shown in the frame of the camera does not exist for the viewer. The frame of the picture defines what the viewer experiences. On a news program, for example, the audience sees a well-dressed news anchor sitting at a desk in the studio delivering important news to viewers. The anchor is dressed in a suit jacket, shirt, and tie, which helps establish his credibility with the audience. Outside the frame of the picture, the audience cannot see that the anchor is wearing Bermuda shorts instead of suit pants. This principle also applies to the set of a program. Can a wide sandy beach in Florida be used to shoot a scene that is set in the Sahara Desert? Yes! To make the shot realistic, the camera operator must be careful to avoid the ocean and condos on the shoreline in the frame of the picture. If it is not seen in the frame of the camera, then it does not exist for the viewer!

White Balance

Each time a camera is powered up, it needs to be “taught” what white is—this is called white balancing the camera. Every color is defined by its relationship to every other color. So, when the white balance is properly set, the camera “sees” all other colors correctly. Some cameras automatically perform a white balance, others require the white balance to be manually performed, and some cameras give the operator a choice of automatic or manual white balancing. When given the choice, always manually white balance the camera because it is usually more accurate. If white balancing is not performed, the recorded image of indoor scenes usually has a yellowish tint and outdoor scenes in daylight have a bluish tint.

The white balance settings are not stored by the camera when it is powered down. The camera must be “re-taught” next time it is powered up. To perform a white balance:
1. Zoom in on a white object on the set that is lit for the shooting.
2. Activate the white balance circuit on the camera.
3. Zoom back out and shoot normally.

Assistant Activity

1. Attach a color monitor to the video output of a camera.
2. Point the camera at a white object.
3. Notice that it does not appear white on the monitor. It may appear greenish, grayish, or even pinkish.
4. Press the white balance button on the camera.
5. Watch the monitor carefully to see the object transformed to a true white color.
Pre-Focusing Zoom Lenses

A zoom lens cannot be focused while it is in the “zoomed out” position. Focusing a zoom lens is a three-step process called **pre-focus**. To pre-focus a zoom lens:

1. **Zoom in** on the furthest object on the set that must be in focus in the shot. The furthest object that must be in focus might not be the background. For example, picture a cowboy on a horse in a prairie with the Rocky Mountains in the background. The furthest object in this shot that must be in focus is most likely the cowboy, not the mountains.
2. **Focus the camera** on that object.
3. **Zoom the lens back out**.

After a pre-focus is performed, everything from about 6’ in front of the camera to the furthest object focused on (in step 2) will be in focus. Everything remains in focus until the camera is moved toward or away from the object of the pre-focus, or until the lighting on the set is changed.

Many cameras offer a macro setting for the lens. The **macro** feature allows the operator to focus on an object that is very close to the camera, almost touching the lens. The relationship between a fully zoomed-in lens and a macro lens is similar to the relationship between a telescope and a microscope.

Depth of Field

The closest an object can be to the camera and still be in focus is the **minimum object distance (MOD)**. Minimum object distance contributes to depth of field. **Depth of field (DOF)** is the distance between the closest point to the camera that is in focus and the furthest point from the camera that is also in focus, **Figure 4-1**.

**Figure 4-1.** The depth of field is the area in front of the camera, regardless of the distance, in which objects are in focus.
**Assistant Activity**

To help clarify this concept, find the MOD of your eye.

1. Close or cover one eye.
2. Hold up your index finger about 12” away from your face.
3. With one eye open, look at your fingerprint; you should be able to clearly see it.
4. Slowly move your finger toward your face.
   
   As you move your finger closer, there comes a point when your eye can no longer focus on your finger and you are unable to clearly see the fingerprint. This point is the minimum object distance (MOD) of your eye.

**great depth of field:**
When a camera’s depth of field is as large as possible.

**shallow depth of field:** A depth of field technique that moves the audience’s attention to the one portion of the picture that is in focus.

Most of the time, a camera’s depth of field should be as large as possible. This is called **great depth of field.** When using a great depth of field, zooming and some camera movements (such as a truck or arc) do not cause the image to go in and out of focus. However, when every element in the picture is in focus, no one particular item stands out for emphasis.

Using **shallow depth of field** moves the audience’s attention to the one portion of the picture that is in focus. A shallow depth of field allows the program’s director to control exactly what the viewer looks at within the frame of the picture. For example, scenes on television and in movies where the foreground is in focus and the background is out of focus direct the viewer’s attention to the item or action in the foreground, Figure 4-2. The reverse is commonly used as well—the background is in focus and the foreground is out of focus. When using a shallow depth of field, the camera operator must refocus the camera if the talent moves toward or away from the camera (even slightly), or if any camera movements are performed.

**Figure 4-2.** The pain this young woman feels is more powerful with the background out of focus. A shallow depth of field compliments this image.
**Selective depth of field** is the technique of choosing to have a shallow depth of field in a shot or scene. One dramatic effect that results from this technique is changing the camera’s focus from the foreground to the background (or the reverse) while the camera is hot. The attention of the audience may be intently concentrated on a foreground image, but the camera gradually brings something unexpected from the background into focus. The process of changing focus on a camera while that camera is hot is called *rack focus*, or *pull focus*. Keep in mind that selective DOF loses its impact when overused in a program.

### Visualize This

The following is a powerful example of the use of selective depth of field. The scene described is an anti-war spot that was used during a Presidential campaign in the 1960s.

A little girl wearing a yellow dress chases a butterfly around a beautiful field of flowers. She giggles and is obviously having a grand, happy time. The background is an out of focus greenish color. The viewer simply assumes that the background contains vegetation of some kind. The camera moves toward a shot of the girl’s smiling face, with her two small hands reaching toward the butterfly a bit closer in the foreground. Right before the viewer’s eyes, the camera’s focus shifts and brings the background of the shot into focus. The background vegetation becomes a line of fifty or more soldiers with rifles ready to fire, stealthily moving out of the trees and toward the camera. The little girl is standing between the advancing soldiers and the camera/viewer and, therefore, in apparent danger.

The use of selective depth of field makes the line of soldiers surprising background material and increases the impact of the scene.

### Factors Affecting Depth of Field

- **Aperture**—The size of the opening in the lens that allows light into the camera.
- **Subject to camera distance**—The distance between the camera and the subject of the shot.
- **Focal length**—The amount the lens is zoomed in or out.

### Production Note

Remember: The f-stop indicates the size of the iris, which creates the size of the aperture.

More movement in each of these three areas creates a more pronounced effect for either shallow or great DOF. Figure 4-3. For example, the effect on DOF produced by zooming in and increasing aperture size is not as great as when the camera moves closer to the subject in addition to zooming in and increasing aperture size.

Camera lenses are operated by camera operators. Even though depth of field involves manipulating light, the lighting designer does not have a part in this process. The camera operator creates depth of field by manipulating the
Figure 4-3. Depth of field chart.

<table>
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<tr>
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<th>Zoom Technique</th>
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| Obtain a shallow depth of field. | Zoom In | Dolly In | Use a lower f-stop value:  
- Reduces the iris  
- Increases the aperture; more light passes through the lens |
| Obtain a great depth of field. | Zoom Out | Dolly Out | Use a higher f-stop value:  
- Enlarges the iris  
- Decreases the aperture; less light passes through the lens |

Lenses. Set lighting does not affect depth of field. Depth of field is affected by subject to camera distance, focal length, and aperture (not light). Understanding how to effectively use depth of field is a valuable tool that can greatly affect the impact and power of a scene for the viewer.

Since the majority of scenes in typical programs are shot using a great depth of field, a smaller aperture is more commonly used. A smaller aperture requires higher light levels to capture a good quality picture. This is why there are so many bright lights on the ceiling of a production studio. Studio sets are saturated with light, which allows the aperture of cameras to be reduced when necessary without affecting the picture quality.

**Lines of Interest**

The **rule of thirds** for television production divides the screen into thirds horizontally and vertically, like a tic-tac-toe grid placed over the picture on a television set, Figure 4-4. Almost all of the important information included in every shot is located at one of the four intersections of the horizontal and vertical lines.

The most common shots on television are the close-up and medium close-up. To follow the rule of thirds when shooting, the talent should be positioned so that their eyes are 1/3 of the way down from the top of the screen, or on the upper horizontal line of the tic-tac-toe grid. In broadcast television, the important people and objects in a shot are slightly to left or right of the center. The center of the tic-tac-toe box rarely contains the main subject or important object of the shot.

**Action**

Nearly every shot in broadcast television includes some kind of action. Either the main subject matter (objects or talent) in the picture provide
action or movement, the camera moves to provide a moving shot, or both
the camera and subject matter move. There is rarely a shot without some
type of action. Audiences today have become accustomed to seeing one
action shot after another and typically lose interest quickly if this is not
the case.

**Assistant Activity**

Rent a movie you recently saw and thought was boring. Watch it again and notice the percentage of shots having little or no action. Does the lack of action contribute to your overall feeling of boredom with the movie?

**Head Room**

The space from the top of a person’s head to the top of the screen is
called head room, Figure 4-5. This space should be kept to a minimum,
unless something important is going to happen above the head of the talent.

**Nose Room**

Nose room, or lead room, is the space from the tip of a person’s nose
to the side edge of the frame. Novice videographers often make errors in
framing with respect to nose room. The natural tendency is to place the
talent in the center of the screen with equal space on either side. That is
acceptable only if the talent is directly facing the camera. The more the tal-
ent looks to the right or the left, the more room should be placed between
their nose and that same edge of the screen, Figure 4-6.
Figure 4-5. Head room is an important consideration when framing a shot.
A—Excessive head room usually indicates that something is about to happen above the subject's head.
B—Correct head room spacing ensures that the audience's attention is not diverted from the main subject of the shot.

Correct use of nose room corresponds with the rule of thirds, in that the most important portion of the image (the faces) are positioned at the intersection of the gridlines instead of the center of the picture. Framing a shot in this way creates a more interesting shot for the viewer. If the talent is walking parallel to the camera, for example, sufficient space should...
be placed in front of the person as they walk. If the scene is shot without enough nose room in this scenario, the talent appears to be pushing the frame of the picture with their nose as they walk. Additionally, if the person is moving laterally, the shot should be enlarged to at least a mid shot. Otherwise, the talent is likely to walk right out of the camera’s view.
VISUALIZE THIS

Imagine a scene in a horror movie. One of the characters is about to be attacked by a vampire approaching from behind. It would be appropriate to leave space behind the talent in the frame so the vampire can enter the picture. When space is left behind someone in a horror movie, however, the audience expects a monster to jump in behind the talent. To mislead the audience, place the space behind the talent in the frame and either:
- make sure nothing happens from that direction, or
- have action occur on the unexpected opposite side of the screen.

Doing this once or twice is effective and increases the reaction of the audience. Using this technique too often reduces its effect and will be laughed at by the audience.

Shot Sheets

A shot is an individual picture taken by a camera during the process of shooting the program footage. In a typical studio shoot with three cameras, the output from each camera runs into a switcher in the control room. The director must decide which image to place on the master program recording and which camera to pull the image from. To do this, buttons on the switcher are selected to cut from one camera to another. For example, close-up shots of individual characters may be needed at various times in the program. To capture the shots necessary, the director must know what is going to be said and what actions are going to happen before they occur on the set. This way, the camera operators can be directed into position to capture the necessary shot when it happens. This kind of planning requires that the director be mentally 5-10 seconds ahead of the performers at all times.

Far less stress would be placed on the director if he did not have to think far enough ahead in the program to tell the camera operators to move. It would also be more efficient if the camera operators knew in advance what their next shot is supposed to be. This would allow them to execute the camera move before the moment arrives for their camera to be hot. Using a shot sheet relieves some of this stress and makes directing a three-camera shoot easier. A shot sheet lists each shot in a program numerically. The list given to each camera contains only the shots that particular camera needs to capture during the program. Each camera used in a production receives a completely different shot sheet.

To use a shot sheet, the director reviews the script before the shoot, plans each camera shot, and assigns a sequential number to each shot. The numbered shots, with corresponding brief descriptions, are divided per camera and written on separate sheets of paper. Figure 4-7. Again, only the shots each particular camera is responsible for are on that camera’s shot sheet. On the day of the shoot, the shot sheets are taped to the side of the corresponding camera. During the shoot, the director can simply say, “Take shot 4” instead of, “Camera 2, I want you to have a close-up of Mary next so get your shot ready while I’m still on camera 3.”

As soon as the director cuts from camera 3 (shot 3) to the shot of Mary on camera 2 (shot 4), the camera 3 operator looks at his shot sheet and sees
that his next shot is shot 8. The operator reviews the brief description and reads the shot without being told to do so. Camera 1 was assigned shot 5 and had the shot set-up and ready to go. Camera 2 has shot 6 and shot 7 is back on camera 1 again. Using shot sheets makes a multi-camera shoot much more efficient and less stressful for everyone.

**Calling the Shots**

There are many different types and sizes of camera shots that can be taken of a person standing in a studio. It is imperative to learn the names of individual shots and what each shot incorporates. Unfortunately, all professional television facilities do not use exactly the same terms. While working in the industry, it is important to know how your facility defines its terms. The sections that follow present the most common definitions of various “person” shots, but the terms are not universal. Obviously, there are times when shots do not contain any people. The shot names still generally apply to the object(s) in the shot that is the main item.

**Wide Shots**

The *extreme long shot (ELS/XLS)* is also known as a *wide angle shot (WA)*. This shot includes a person’s entire body from head to toe, and as much surrounding information as the camera can capture by dollying and zooming out. This is generally considered to be the biggest shot a camera can capture of the subject matter, **Figure 4-8**. Overusing the extreme long shot, however, can prove ineffective. An extreme long shot of a crowd that is viewed on a small television screen appears to be an image of a multi-colored wheat field waving in the breeze. A shot that is too “long” creates a picture without detail.

An *establishing shot* is a very specific type of extreme long shot. The establishing shot is used to tell the audience where and when the program takes place. For example, if the opening shot is of a dusty town with dirt roads, cowboys riding horses, and a stagecoach approaching, the audience can assume the program is set in the Old West, and not onboard the starship Enterprise. Directors periodically return to an establishing shot during a scene to reinforce the location and to prevent confusion.

A *long shot (LS)* captures a person from the top of the head to the bottom of the feet, **Figure 4-9**. Much less of the surrounding details are included, compared to the extreme long shot.

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**extreme long shot (ELS/XLS):** The biggest shot a camera can capture of the subject matter. Also called a **wide angle (WA) shot.**

**establishing shot:** A specific type of extreme long shot used to tell the audience where and when the program takes place.

**long shot (LS):** A shot that captures a subject from the top of the head to the bottom of the feet and does not include many of the surrounding details.
Figure 4-8. An extreme long shot is the largest shot the camera can get. The ELS is usually a shot of a person from head to toe and includes as much detail of the subject's surroundings as possible.

Figure 4-9. A long shot includes the subject from head to toe only.

**medium long shot (MLS):** A shot that includes the top of a subject’s head to a line just above or just below the knee. Also called a knee shot.

**medium shot (MS):** A shot that captures a subject from the top of the head to a line just above or below the belt or waistline. Also called a mid shot.

**Individual Subject Shots**

A medium long shot (MLS), sometimes called a knee shot, includes the top of a person’s head to a line just above or just below the knee, Figure 4-10. The medium shot (MS) is also referred to as a mid shot, Figure 4-11. This shot captures a person from the top of the head to a line just above or below the belt or waistline.
A medium close-up (MCU), also called a bust shot, frames a person from the top of the head to a line just below the chest, Figure 4-12. This is the type of shot usually seen of newscasters on daily news programs.

A close-up (CU) shot is also known as a narrow angle shot. For a person, this shot captures the top of the head to just below the shoulders, Figure 4-13. When framing a close-up shot, it is important to include the

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**Figure 4-10.** The bottom edge of a medium long shot is just below or just above the subject’s knee.

**Figure 4-11.** The medium shot, or mid shot, includes the subject’s head to just above or below the waistline.

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*medium close-up (MCU):* A shot that frames a subject from the top of the head to a line just below the chest. Also called a bust shot.

*close-up (CU):* A shot that captures a subject from the top of the head to just below the shoulders. Also called a narrow angle shot.
**Figure 4-12.** A medium close-up captures a person from head to just below the chest.

**Figure 4-13.** The close-up shot includes a subject’s head and neck, and must include the top of their shoulders.

**extreme close-up (ECU/XCU):** A shot of an object that is so magnified that only a specific part of the object fills the screen. If the shoulders are not included, the image is a disembodied head at the bottom of the screen, **Figure 4-14.**

An **extreme close-up (ECU/XCU)** is a shot of a specific body part, **Figure 4-15.** This may be used, for example, in a makeup ad showing how mascara enhances the appearance of the eyes.
Multiple Subject Shots

- A two shot includes two items of primary importance. A shot of two news anchors sitting at the news desk is an example of a two shot.
- A three shot frames three items. For example, a sportscaster joins the two news anchors at the news desk.

**Figure 4-14.** A close-up shot that does not include the subject's shoulders leaves a “floating” head in the frame.

**Figure 4-15.** On a person, an extreme close-up is a shot of a specific body part or feature.

**two shot:** A shot that includes two items of primary importance.

**three shot:** A shot that frames three items.
A **four shot** captures four items. Picture a meteorologist joining the news anchors and sportscaster at the news desk.

A **group shot** incorporates any number of items above four. The shot of a basketball team after winning a game is an example of a group shot.

### Specific View Shots

A **reaction shot** captures one person’s face reacting to what another person is saying or doing. This is a very powerful type of shot. For example, in a scene where a policeman delivers sad news to a distraught parent, the shot should be of the parent hearing the news, not the policeman delivering the news.

A **profile shot** is generally considered to be a bad shot, Figure 4-16. The talent’s face in profile appears completely flat on the screen and creates an unflattering picture.

### PRODUCTION NOTE

The television screen is flat. A videographer must arrange shots in a way that creates the illusion of three dimensions and depth when displayed on a flat screen. When framing an individual shot of an object, whether it’s as small as a person or as large as a building, try to shoot it at an angle. A straight-on shot of a person with their nose pointed at the camera lens appears very flat. Likewise, a profile shot also appears flat. If the shot is taken at an angle, somewhere between a profile and a straight-on shot, three dimensionality and depth are achieved. The most common shot is an angle that includes all of one side of the face and enough of the other side to see the cheekbone or eyebrow. When shooting a building, try to shoot it from a corner that includes two sides of the building instead of just one side.

![Figure 4-16](image) The profile shot produces a very flat appearance.
The over-the-shoulder shot (OSS) is an extremely common shot on any program, Figure 4-17. The back of one person’s head and top of their shoulder is in the foreground of the shot. A face shot of the other person in the conversation is in the background of the shot. One OSS is usually followed by another OSS from the other side of the conversation. It is a more interesting shot than just a close-up of each person speaking or listening.

**PRODUCTION NOTE**

When framing shots of people, never allow the edge of a picture cut at the joint of the human body (ankles, knees, waist, wrists, elbows, or neck). The person pictured in the shot will appear to have amputated body parts, Figure 4-18. This is especially important to remember if your facility uses the terms “bust shot” and/or “knee shot.” These shot names seem to “ask” for a poorly composed shot.

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**Camera Movement**

It is important to understand how to move a camera when it is mounted on a tripod. Beginning from a still shot, slowly start the camera move, speeding up gradually until the move is nearly complete, and then gradually slow down until the move is completed. When performing camera moves, position your body where it needs to be at the end of the shot and twist to the position needed to begin the shot. As your body straightens to return to a normal standing position, the camera move is smoothly completed. This camera movement technique also applies to hand-held shooting.

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**Figure 4-17.** An over-the-shoulder shot adds three dimensions to an otherwise flat two-person conversation.
Figure 4-18. Never frame a shot that cuts off a person at a natural joint of the body.

There is a specific term to indicate every type of camera movement possible. Being familiar with these terms is important to effectively communicate within the industry. Camera directions are always given in respect to the camera operator’s point of view, not the talent’s point of view. Unlike theatrical stage directions, camera movement commands in television production are intended for the camera operators. Illustrations of each camera movement defined are presented in Figure 4-19. The camera operator may use these camera movements in conjunction with zooming to create the director’s intended effects.

- **Dolly.** Physically moving the camera, its tripod, and dolly perpendicularly toward or away from the set. **Dolly in (DI):** Smoothly pushing the camera directly forward toward the set. **Dolly out (DO):** Pulling the camera backward while facing the set.

**Talk the Talk**

The word “dolly” has two meanings in the television production industry:

- Noun: It is the wheeled cart in which the tripod sits, enabling the tripod to be smoothly rolled around the studio.
- Verb: It is a camera movement in which the camera tripod, and dolly move perpendicularly toward or away from the set.

- **Truck.** Moving the camera, its tripod, and dolly to the left or right in a motion that is parallel to the set. To **truck right (TR),** move sideways and to the camera operator’s right while facing the set.
much like looking at people standing on a station platform while you are on a train pulling away from the station. To **truck left (TL)**, move sideways and to the camera operator’s left, while facing the set.

- **Pan.** Moving only the camera to scan the set horizontally; the dolly and tripod remain stationary. **Pan left (PL)** is when the camera scans to the camera operator’s left, and **pan right (PR)** is when the camera scans to the camera operator’s right.
**TILT**: Pointing only the front of the camera (lens) vertically up or down while the dolly and tripod remain stationary.

**Tilt up (TU)**: Pointing the camera lens up toward the ceiling, while the dolly and tripod remain stationary.

**Tilt down (TD)**: Pointing the camera lens down toward the ground, while the dolly and tripod remain stationary.

**Pedestal**: Raising or lowering the camera on the pedestal or on a tripod, while facing the set. The tripod and dolly remain stationary.

**Pedestal up (PedU)**: Raising the camera on the pedestal of a tripod, while facing the set. The tripod and dolly remain stationary.

**Pedestal down (PedD)**: Lowering the camera on the pedestal of a tripod, while facing the set. The tripod and dolly remain stationary.

**Arc**: Moving the camera in a curved truck around the set, while the camera remains fixed on the main object in the shot—the main subject never leaves the frame of the picture. An **arc right (AR)** involves rolling the camera, tripod, and dolly in a circle to the camera operator’s right (counterclockwise) around the subject of the shot. Rolling the camera, tripod, and dolly in a circle to the camera operator’s left (clockwise) around the subject is an **arc left (AL)**.

**Visualize This**

Think of an arc camera move like circling a car that you’d like to buy. While looking at the car, you walk all the way around it while facing the car as you walk.

### Psychology of Presentation

Some television production techniques, if used properly, can actually cause the audience to physically “feel” something. An example of this is subjective camera, described in the previous chapter. The audience sees images from a camera mounted in a stunt driver’s car as he drives up and down large hills at high speeds. The audience can “feel” their stomachs lurch as the car rockets down a steep hill. The videographer can also plant attitudes in the minds of viewers merely by the way a picture is framed. A program has the power to shape the viewers’ perception of someone or something without expressly verbalizing an opinion. This is a significant power to have over a large number of people. An experienced and talented camera operator can influence an audience without the majority of individuals even realizing their opinion has been manipulated. This kind of talent comes with great responsibility as well.

A **low angle shot** is created by placing the camera anywhere from slightly to greatly below the eye level of the talent and pointing it upward toward the talent, Figure 4-20. The talent appears to be above the audience. Tilting the camera up while shooting a character makes the audience see the character as powerful, feel respect for the character, and possibly fear
the character. On the other hand, tilting the camera down causes the audience to feel superior to the character. The character is perceived as weak and insignificant. Shooting talent with the camera higher in the air and pointed down at an angle is called a high angle shot, Figure 4-21.

**Figure 4-20.** In a low angle shot, the camera is placed low to the ground and looks up at the subject.

**Figure 4-21.** The camera is high off the ground in a high angle shot and looks down on the object in the shot.

**low angle shot:** A shot created by placing the camera anywhere from slightly to greatly below the eye level of the talent and pointing it up toward the talent.

**high angle shot:** Shooting talent with the camera positioned higher in the air and pointing down at an angle.
A greater degree of tilting up or down heightens or lessens the degree of emotion and perception felt by the audience. Making the audience feel inferior or superior only occurs with consistent use of low or high angle shots. Randomly using low or high angle shots on a character does not evoke the same emotions from the audience. If this technique is performed with extreme degrees of tilting, the entire effect is obvious to the point of being comedic. Always experiment before recording the final image.

When doing news programming, getting shots using perception-manipulating camera techniques is extremely unethical. Using shots like this is an intentional attempt at manipulating viewers to adopt the opinions of the news producers. This is sometimes called yellow journalism, propagandizing, or brainwashing.

To impart a neutral feeling, the camera should be placed at the talent’s eye level. News sets in professional television studios are on raised platforms. The goal of news programming is to have newscasters relate to the audience and be believable as they report. Since newscasters sit in chairs, the cameras would have to look down on them as they report. It is not practical to have the cameras pedestal down to the eye level of the talent. Camera operators would have to bend over to see through the camera’s viewfinder for the entire duration of the shoot. Building platforms for the newscasters is much less expensive than the medical care required for camera operators with back ailments from being bent over lowered cameras for extended periods of time.
Wrapping Up

Ultimately, the camera operator is responsible for framing each shot that is recorded for a program. In addition to camera focus and zooming, the camera operator must consider camera movements, specific shots and angles, and following the impromptu instructions of the director. An important section of this chapter addresses selective depth of field and the factors, controlled by the camera operator, that create selective depth of field. Only the camera operator can affect depth of field by manipulating the lens. Remember that the camera’s aperture affects depth of field, not lighting. If the camera operator closes the iris down some, for example, the depth of field increases, but the picture is dark. In this case, the lighting designer may be asked to add additional lighting to the set. The set design and lighting contribute to the production goals, but the camera operator must capture all the program elements to realize the director’s vision.

Review Questions

Please answer the following questions on a separate sheet of paper. Do not write in this book.
1. How does white balancing affect the images recorded by a camera?
2. List the steps in pre-focusing a zoom lens.
3. Explain why a camera’s depth of field should most often be as large as possible.
4. Why is shallow depth of field used in a program?
5. How does the rule of thirds affect picture composition?
6. What is nose room?
7. How is a shot sheet created and used during production?
8. What is the purpose of an establishing shot in a program?
9. Describe a scene in which an over-the-shoulder shot would likely be used.
10. Explain the difference between a dolly camera movement and a truck camera movement.
11. How does the camera angle affect the audience’s perception of a character?

Activities

1. Create a shot sheet for a three-camera production instructing viewers on how to make a peanut butter and jelly sandwich. The shots must vary. No single shot should last more than three seconds.
2. Choose one category of camera shots discussed in this chapter (wide shots, individual subject shots, multiple subject shots, or specific view shots). Create a display that illustrates each of the shots included in the selected category.
3. Use your own body to demonstrate the camera movements described in this chapter.

- Pan Left: Stand perfectly still and turn your head to your left.
- Pan Right: Stand perfectly still and turn your head to your right.
- Tilt Up: Stand perfectly still and point your nose to the ceiling of the room.
- Tilt Down: Stand perfectly still and point your nose to the ground between your feet.
- Pedestal Up: Rise up on your tiptoes while facing forward (toward the set).
- Pedestal Down: Squat down while facing forward (toward the set).
- Dolly In: Smoothly walk forward, directly toward the set.
- Dolly Out: Smoothly walk backward while facing the set.
- Truck Right: Walk sideways to the right while facing the set.
- Truck Left: Walk sideways to the left while facing the set.
- Arc: Walk in a circle around an object, keeping your eyes fixed on that object. Walking to your right (counterclockwise) is an arc right. Walking to your left (clockwise) is an arc left.

**STEM and Academic Activities**

1. Investigate how macro lenses work. Explain how the different millimeter designations of macro lenses affect how the lenses are best used.

2. Print screen shots of 10 individual scenes from various television shows, newscasts, or product spots. To follow the rule of thirds when shooting, the on-screen talent should be positioned so that their eyes are 1/3 of the way down from the top of the screen, or on the upper horizontal line of the tic-tac-toe grid. Using the rule of thirds model, draw a grid on each printout. Of the 10 scenes, how many followed the rule of thirds for talent placement? What percentage of scenes made proper use of the rule of thirds?

3. Research “yellow journalism” and choose one case of yellow journalism that interests you. Write a paper that explains the story and why it is considered an example of yellow journalism.

4. Review several still photos and note the portion of the photo that your eye is drawn to first. Draw a grid representing the rule of thirds on a sheet of vellum or transparency film. Lay the grid over each of the photos. Which quadrant of each photo do you look at first? What do your findings tell you about placement of the most important information contained in the television image?