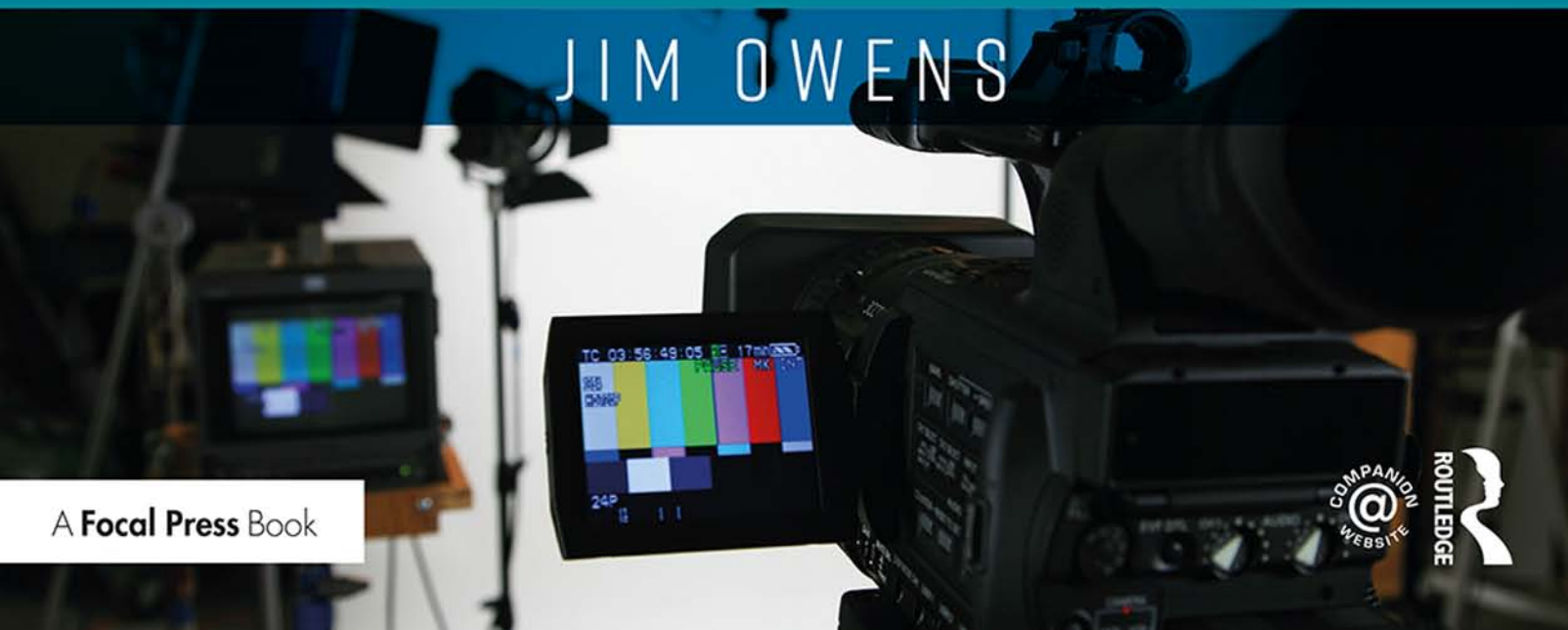
SEVENTEENTH EDITION

TELEVISION PRODUCTION

JIM OWENS



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ROUTLEDGE

Television Production

Gain the skills you need to succeed in the television industry and master the production process, from shooting and producing, to editing and distribution. This new and updated 17th edition of *Television Production* offers a thorough and practical guide to professional TV production techniques. Learn how to anticipate and quickly overcome commonly encountered problems in television production as author Jim Owens details each role and process, including the secrets of top-grade camerawork, persuasive lighting techniques, and effective sound treatment, as well as the subtle processes of scenic design, directing, and the art of video editing.

Updated throughout, containing a range of new figures and diagrams, the 17th edition of this classic text includes:

- A discussion of the changing definition of "television" and how new technology alters viewing habits;
- Interviews with professionals in the industry about the challenges they face during the production process and the advice they would give to those trying to break into the production and television industries;
- A review of production practices and techniques for VR;
- A description of the latest cameras and equipment, including LED lighting and remote production;
- Guidance and techniques for low-budget, DIY-style productions;
- A comprehensive resource page for instructors, containing slides and testing materials to aid in the learning process can be found at www.routledge.com/cw/owens.

Jim Owens has worked and taught in the video and television industry for over 30 years. As an Emmy Award-winning producer, he has worked on local, regional, and national productions. Owens' international television work has included 15 Olympic broadcasts and has taken him to over 25 countries. He is the author of *Video Production Handbook*, *Television Production*, and *Television Sports Production* (all published by Routledge), and has had over 30 articles published in television and broadcast magazines in the United States and Europe. He served as the curator of the History of Olympic Broadcasting exhibition at the Olympic Museum in Lausanne, Switzerland. Owens is Dean of the School of Communication Arts at Asbury University in Wilmore, Kentucky, where he has taught since 1981.


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Dedicated to my wife, Lynn, and
my daughter, Sarah


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CHAPTER 1

AN OVERVIEW OF TELEVISION PRODUCTION

"I believe that good television can make our world a better place."

—Christiane Amanpour, CNN Reporter

"Any program, at any time, on any device, at any location."

—Frank Beacham, Director and Producer

TERMS

DVE: Digital video effect equipment, working with the switcher, is used to create special effects between video images. A DVE could also refer to the actual effect.

DSLR: A still camera (digital single lens reflex camera) that shoots video, allowing the photographer to see the image through the lens that will capture the image.

Linear editing: The copying, or dubbing, of segments from the master recording (traditionally tape) to another recorder in sequential order.

Nonlinear editing: The process in which the recorded video is transferred onto a computer. Then the footage can be arranged and rearranged, special effects and graphics can be added, and the audio can be adjusted using editing software.

Prosumer equipment: Prosumer equipment, sometimes known as *industrial equipment*, is a little heavier-duty and sometimes employs a few professional features (such as interchangeable lenses on a camera), but may still have many of the automatic features that are included on the consumer equipment.

Second screen: Today's television audience is not just watching television; they are also on a computer of some type, often called the "second screen".

Smartphones: Smartphones have become the video camera of choice for amateurs. As the image quality has grown, smartphones have been adopted by news stations, documentary producers, and other professionals as a backup camera.

Switcher (vision mixer): Used to switch between video inputs (cameras, graphics, video players, etc.).

"The definition of television is changing. When you put video on any device, it becomes a television. It's because of the programming, it's the quality, it's the story line. It's all those things we associate with television programming. 'Television' was never the box—it was the programming that was on the box."

—Chris Pizzuro, Head of Business Development, Canoe Ventures and former Vice President, Digital News Media, Turner Entertainment

WHAT IS TELEVISION?

The 2018 Emmy Awards were a perfect example of television's transition to the Internet. Online Netflix (online) and HBO (on-cable and online) each won 23 Emmys. NBC led the broadcast networks by winning five Emmy Awards.

Defining television can be quite difficult. It used to be easy; television directors and producers knew that their final program would be generally viewed on a 19-inch television set located in a home. As you know, that is no longer the case. Television's definition now also embraces technologies such as large-screen televisions, computers, the Internet, tablets, and smartphones. These changes have brought many new players into the television industry. Online networks now create programming that is as high quality as what we have seen in the past on the broadcast networks and cable. With their lower cost overhead and monthly subscription income, they increasingly have the money and audience to pull in some of the best program creators.

Today's viewing audience lives in a hyperconnected world. They do not distinguish between programming as being on television or online; they are looking for quality content that is accessible wherever and whenever they want it. Bottom line, television has to create the best possible experience for the greatest number of consumers in the widest viewing environment—in the kitchen, bedroom, living room, on laptops, and mobile devices, as well as in the home theater. What a challenge!

The Second Screen

Today's television audience is not just watching television; they are also on a computer or smartphone of some type, often called the "second screen." One of Nielsen's studies shows that more than 85 percent of mobile and computer users access the Web while watching TV. However, only 24 percent were actually looking at content related to the TV program, while others used it to text family and friends (56 percent), visit social networks (40 percent), and browse unrelated content (37 percent).

Those statistics are of great interest to television executives who are looking for ways to integrate social media with television programming. For example, in New Zealand, TVNZ has launched a youth channel that has created an interactive entertainment show that features chat and commentary driven by Facebook. Viewers can give their opinions using polling, write comments, and even include their profile photos, which are shown on the actual program.

Robin Sloan, from Twitter's media partnership team, thinks there is definitely an appetite for more integration. "People like to talk about the programming as it is happening," he said. "At this stage, they [TV executives] are primarily using Twitter to engage their existing audience and give them something to talk about. Our goal is to get Twitter integrated into TV shows. It means that people think about Twitter as a source of really great content, and frankly it means that Twitter gets in front of a really big audience."

"Social TV is a modern version of the old days of gathering round the TV to watch a variety show on a Saturday night," said Reggie James, managing director of marketing agency Digital Clarity.

TELEVISION PRODUCTION

Although the television medium has experienced transforming technical changes in the past decade, it is important to keep in mind that the key to great television is still storytelling. As equipment and means of transmission have evolved and become increasingly affordable and adaptable, production techniques have also evolved in order to take advantage of these new opportunities.

Equipment Has Become Simpler to Use

You've probably already discovered how even inexpensive consumer camcorders or even smartphones can produce extremely detailed images under a wide range of conditions (Figure 1.1). Camera circuitry automatically adjusts and compensates to give you a good picture. A photographer needs to do little more than point the camera, follow the subject, and zoom in and out. To pick up audio, we can simply clip a small lavaliere microphone onto a person's jacket, give him or her a handheld microphone, or just use the

FIGURE 1.1 *In 2018 Steven Soderbergh shot the film* Unsane *using an iPhone 7 Plus. He said that "selecting an iphone to shoot the film was a legitimate creative choice for that style of film."*

Source: Photo by Jim Owens.

microphone built into the camera. As for lighting, today's cameras are so sensitive that they work in daylight or whatever artificial light happens to be around. So where's the mystery? Why do we need to study television/video techniques? Today, anyone can get results.

The Illusion of Reality

> **"You must use the camera and microphone to produce what the brain perceives, not merely what the eye sees. Only then can you create the illusion of reality."**
>
> **—Roone Arledge, Former Producer, ABC Television**

One of the basic truths about photography, television, and film is that the camera always lies. On the face of it, it's reasonable to assume that if you simply point your camera and microphone at the scene, you will convey an accurate record of the action to your audience. But, if we are honest, the camera and microphone inherently transform "reality."

There can be considerable differences between what is actually happening, what your viewers are seeing, and what they think they are seeing. How the audience interprets space, dimension, atmosphere, time, and so on will depend on a number of factors, such as the camera's position, the lens selection, lighting, editing, the accompanying sound, and, of course, their own personal experience.

We can use this gap between the actual and the apparent to our advantage. It allows us to deliberately select and arrange each shot to affect an audience in a specific way. It gives us the opportunity to devise different types of persuasive and economical production techniques.

If a scene looks "real," the audience will invariably accept it as such. When watching a film, the audience will still respond by sitting on the edge of their seats to dramatic situations. Even though they know that the character hanging from the cliff is really safe and is accompanied by a nearby production crew, it does not override their suspended disbelief.

Even if you put together a disjointed series of totally unrelated shots, your audience will still attempt to rationalize and interpret what they are seeing (music videos and experimental films rely heavily on this fact to sustain interest). If you use a camera casually, the images will still unpredictably influence your audience. Generally speaking, careless or inappropriate production techniques will usually confuse, puzzle, and bore your audience. The show will lack a logical and consistent form. Systematic techniques are a must if you want to catch and hold audience attention and interest.

It's All About How You Do It

At first thought, learning about television production would seem to be just a matter of mastering the equipment. But let's think for a moment. How often have you heard two people play the same piece of music yet achieve entirely different results? The first instrumentalist may hit all the right notes but the performance may sound dull and uninteresting. The second musician's more sensitive approach stirs our emotions with memorable sound.

Of course, we could simply assume that the second musician had greater talent. But this "talent" generally comes from painstaking study and effective techniques. Experience alone is not enough—especially if it perpetuates incorrect methods. Even quite subtle differences can influence the quality and impact of a performance. You'll find parallel situations in television production practices.

Techniques Will Tell

It's common for three directors to shoot the same action, and yet produce quite diverse results:

- In a "shooting by numbers" approach, the first director may show us everything that's going on, but follow a dull routine: the same old wide shot to begin with, followed by close-up shots of whoever is speaking, with intercut "reaction" shots of the listeners.

- The second director may worry so much about getting "unusual" shots that he or she actually ends up distracting us from the subject itself.
- The third director's smooth sequence of shots somehow manages to create an interesting, attention-grabbing story. The audience feels involved in what is going on.

Clearly, it's not simply a matter of pointing the camera and staying in focus.

Similarly, two different people can light the same setting. The first person illuminates the scene clearly enough, but the second somehow manages to build a persuasive atmospheric effect that enhances the show's appeal. These are the kinds of subtleties you will learn about as we explore techniques.

Having the Edge

Working conditions have changed considerably over the years. Earlier equipment often required the user to have deep technical understanding to operate it effectively and keep it working. Some of the jobs on the production crew, such as camera, audio, lighting, video recording operation, and editing, were all handled by engineers who specialized in that specific area.

In today's highly competitive industry, in which equipment is increasingly reliable and operation is simplified, there is a growing use of multitasking. Individuals need to acquire a variety of skills, rather than specialize in one specific skill or craft. Also, instead of permanent in-house production crews, the trend is to use freelance personnel on short-term contracts for maximum economy and flexibility. Today, companies often send a single person out on location with a lightweight camera to record the images and sound, use a laptop computer system to edit the results, and return with a complete program ready to put on the air (Figure 1.2).

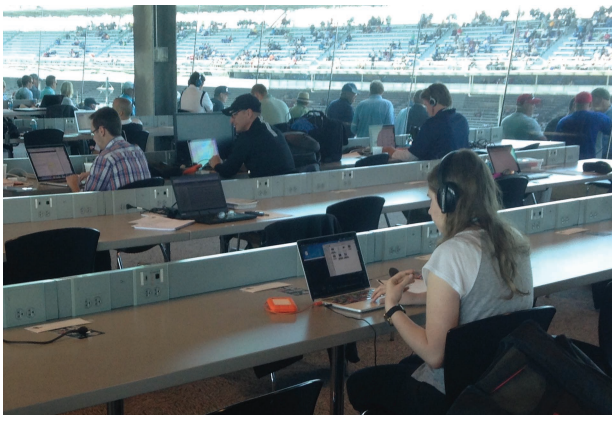

FIGURE 1.2 *This editor for Sports Illustrated is cutting a video together in the press room at the Indianapolis Motor Speedway on her laptop.*

The person with greater know-how and adaptability has an edge. Job opportunities vary considerably. The person who specializes in a single craft can develop specific aptitudes in that field. However, the person who can operate a camera today, light a set tomorrow, and subsequently handle the sound has more opportunities in today's market.

Although a single person can accomplish many roles, television still relies on teamwork. Results depend not only on each person knowing his or her own job, but also on his or her understanding of what others are trying to accomplish.

Studying this book will give you a number of major advantages:

- By taking the trouble to understand the fundamentals of the equipment that you are using, you'll be able to rapidly assimilate and adapt when new gear comes along. After that, it's just a matter of discovering any operational differences and different features.
- It will help you to anticipate problems and avoid problems before they happen.
- When unexpected difficulties arise, as they inevitably will at some point, you will recognize them and quickly compensate. For example, when the talent has a weak voice, you may be able to tighten the shot a little to allow the sound boom to come a little closer without getting into the shot.

OVERVIEW

Before we begin our journey, let's take an overview of the terrain we will be covering. This will help to familiarize you with the areas that you are going to have to deal with and give a general idea of how they interrelate.

Organization

Although organizational basics follow a recognizable pattern for all types of television production, the actual format the director uses will always be influenced by these factors:

- Whether the production is taking place in a studio or on location.
- Whether it is to be transmitted live or recorded for transmission later.
- Whether the action can be repeated (to correct errors, adjust shots) or is a one-time opportunity that has to be captured the first time around.
- Any restrictions due to limitations in time, equipment, and space.
- Whether there is a live audience.

In some situations, a multi-camera setup is the best solution for shooting an event (this is when the cameras are controlled by a production team in a control room). At other times, the director may choose to stand beside a single camera, guiding each shot from a nearby video monitor (Figure 1.3).

HISTORY OF TELEVISION

1923: Russian immigrant Vladimir Kosma Zworykin patents the iconoscope, the first television transmission tube. He patents the first color tube in 1925.

1926: John Logie Baird, credited with inventing mechanical television, is the first to transmit a television image using a mechanical television.

1927: Philo T. Farnsworth transmits the first all-electronic television image.

1928: The first television is sold—a Daven for US$75.

June 2, 1931: The earliest true broadcast (available to the public) of an outdoor sporting event is the BBC's coverage of The Derby (horse race) at Epsom in Great Britain. The production's mechanical television equipment utilizes one camera.

1936: The British Broadcasting Corporation (BBC) debuts the world's first television service with three hours of programming a day.

1939: First major league baseball and football (American style college and NFL) games are telecast.

1949: First television show broadcast in color was Kukla, Fran and Ollie.

1952: First videotape used.

1955: The Helivision anti-vibration helicopter camera mount is invented by French director/cinematographer Albert Lamorisse.

April 1960: Ampex introduces the Intersync accessory, which makes it possible to cut to or from videotape without rolls or discontinuity and to do dissolves and some special effects.

1962: The first transatlantic television transmission occurs via the Telestar satellite, making worldwide television and cable networks a reality.

December 7, 1963: CBS airs the first instant replay during a football game in Philadelphia.

April 1967: Ampex introduces the first battery-powered portable high-band color tape recorder. Weighing 35 pounds, it can record for 20 minutes. The accompanying camera weighs 13 pounds.

1968: NHK in Japan begins work on high-definition television (HDTV).

1969: First handheld video camera is developed.

1969: First exhibition of HDTV (Japan).

June 3, 1989: Japan begins regular high-definition television transmissions by satellite.

November 2003: MobiTV becomes the first streaming television content service that delivers live television programming to mobile phones.

January 1, 2010: Sky launches the world's first all-3D channel, Sky 3D.

2010: NHK shoots the Tokyo Marathon in ultra-high definition (UHD), previously called super hi-vision, which includes 22.2 multichannel sound.

February 2012: First Super Bowl streamed becomes the largest social media event for TV in history. There are over 2 million unique users with 4.5 million live streams online, a milestone for Internet live distribution of video. Over 5.4 million people post 12.2 million comments during the game.

June 2013: World's first 4K OB vehicle, Telegenic's T25 truck, uses seven 4K cameras to produce the Confederations Cup in Brazil.

May 2014: First 4K UHD live streaming event is produced by French broadcaster TDF of the French Open 2014 tennis championship.

December 2015: Sony and Samsung announce that they are producing smart TVs. These sets have integrated Internet access within the television and are examples of the technological convergence between computers, television sets, and set-top boxes.

November 2016: First IP-based (Cloud) multi-camera production by DutchView InfoStrada. The show was Carlo's TV Cafe.

February 2017: First VR broadcast of a live event. Fox Sports and Beyond Sports gave viewers the ability to use a "virtual cameraman" to watch the match from different angles.

(Compiled with input from Iain Baird, DigitalSport, earlytelevision.org, Ed Reitan's Color Television History, Philo T. Farnsworth Archives, Lytle Hoover, terramedia.co.uk, Alexander B. Magoun, David Sarnoff Library, sportandtechnology.com, tvhistory.tv, oldradio.com, Tom Genova, and the British Museum.)

FIGURE 1.3 *Directors using a single camera often guide the shot by viewing the camera image on a monitor.*

FIGURE 1.4 *Cameras with large lenses are used as "fixed" or "stationary" cameras.*

Source: Photo by Jim Owens.

Planning and Performance

In order to create a smooth-flowing live television production, the director needs to understand the event; for example, what is going to happen next, where people are going to stand, what they are going to do, their moves, what they are going to say, and so on. Although there will be situations in which the director has no option but to extemporize and select shots spontaneously, quality results are more likely when action and camera treatment are planned in advance.

In more complex productions, it is usually necessary for performers and crews to work following a production schedule, which is based on the script. This serves as a regulatory framework throughout the show. Action and dialogue are rehearsed to allow the production team to check their camera shots, lighting, set sound levels, rehearse cues, and so on. These rehearsals give the crew a chance to see what the director is going to do. They also allow the director to see what does or does not work. In a drama production, actors have usually memorized all their dialogue (learned their lines), and every word and move is rehearsed before the actual shoot begins.

Shooting the Action

You can shoot action in several ways:

- As a continuous process recording everything that happens.
- Dividing the total action into a series of separately recorded sequences (scenes or acts).
- Analyzing each action sequence, putting them into a series of separately recorded shots with variations in viewpoints and/or subject sizes. Action may be repeated to facilitate later editing.

Later, in Chapters 9 and 10, we will look at the advantages and limitations of these various methods.

Cameras

Today's cameras range from large network cameras with huge lenses to lightweight designs that are adaptable to field and studio use (Figures 1.4–1.6). For documentaries and newsgathering, even smaller handheld or worn units can play a valuable role.

Video Recording

For convenience and greater flexibility, most television programs are recorded. Historically, video was recorded on a tape. However, today the picture and sound are usually recorded on a hard drive, or flash memory (Figure 1.7).

FIGURE 1.5 *Some small lightweight cameras are designed to be worn on a head.*

Source: Photo by Andrew Wingert.

FIGURE 1.6 *DSLRs (digital single-lens reflex) shoot still photos and high-quality video, all on the same camera.*

Source: Photo courtesy of Canon.

In some situations, sound may be recorded on a separate audio recorder, too. The video recorder may be:

- Often integrated into the actual camera unit.
- In a separate nearby portable unit, which is connected to the camera by cable.
- Housed in a central video recording area in a remote van or nearby room.

In a multi-camera production, the separate outputs of the cameras are to be switched or blended together. This task is carried out with a production switcher (Figure 1.8). The program is generally recorded on a central video recorder. Alternatively, each camera's output may be recorded separately on individual video recording decks (called an isolated camera or ISO camera) and their shots can be edited together during an editing session.

FIGURE 1.7 *Hard drives are increasingly used to record video images.*

Source: Photo courtesy of Blackmagic Design

Additional Image Sources

Additional image sources such as graphics, animations, still shots, digital video effects (DVEs), and other picture sources may be inserted into the program during production or added to the final project recording during the postproduction editing session.

Program Sound

Typically, a microphone is clipped to the speaker's clothing, handheld, or attached to a sound boom or other fitting. Music, sound effects, commentary, and the like can either be

FIGURE 1.8 *Production switchers are used to switch between two or more live cameras during a project.*

FIGURE 1.9 *A wireless microphone is placed on the talent and lights are used to boost the natural light.*

FIGURE 1.10 *Set building requires skilled craftspeople.*

played into the program's soundtrack during the main taping session or added later during postproduction (Figure 1.9).

Lighting

Lighting can significantly contribute to the success of a presentation, whether it is augmenting the natural light or providing totally artificial illumination. Lighting techniques involve carefully blending the intensities and texture (hardness or diffusion) of the light, with selectively arranged light direction and coverage, to bring out specific features of the subject and/or scene (Figure 1.9).

Sets and Scenic Design

Scenic design, or providing appropriate surroundings for the action, creates a specific ambience for the program. The setting may include an existing location, sets that are built for the program, or virtual sets that can be used to simulate an environment (Figure 1.10).

Makeup and Costume (Wardrobe)

In larger productions, these areas are overseen by specialists. But in smaller productions, the responsibility for these areas may be given to someone else, such as a production assistant (Figure 1.11).

FIGURE 1.11 *The wardrobe department at a major studio.*

Editing

There are two forms of editing:

- *Live editing* occurs during the actual performance. A technical director, or vision mixer, cuts or dissolves between video sources (multiple cameras, graphics, etc.) using a production switcher (vision mixer) directly to air or to a recording medium.
- *Postproduction editing* occurs after all of the program materials (video, audio, and graphics) have been compiled. The chosen shots or segments are then placed together in the appropriate order to create the final program.

Two basic systems are used in postproduction editing:

- In *linear tape editing*, specific segments from the original footage tape are selected and then copied from one tape deck to another tape deck to form a master tape. The content is placed on the master tape in a linear order. Significant changes to the edited master are difficult, as the program was assembled in a linear fashion on a tape. Linear systems usually require separate graphics and audio equipment. Linear editing equipment is rarely found today, primarily used by small television stations who invested in a substantial amount of tape-based equipment.
- In *nonlinear editing*, portions of the original footage are usually transferred onto a hard drive. Nonlinear editing systems allow random access to the individual video and audio clips and allow an unlimited number of changes to the program, as the clips can be easily reconfigured and manipulated on the hard drive. The final master is then output to a recording medium. Nonlinear systems usually include graphics and audio processing software (Figure 1.12). Nonlinear equipment is by far the most popular type of editing equipment.

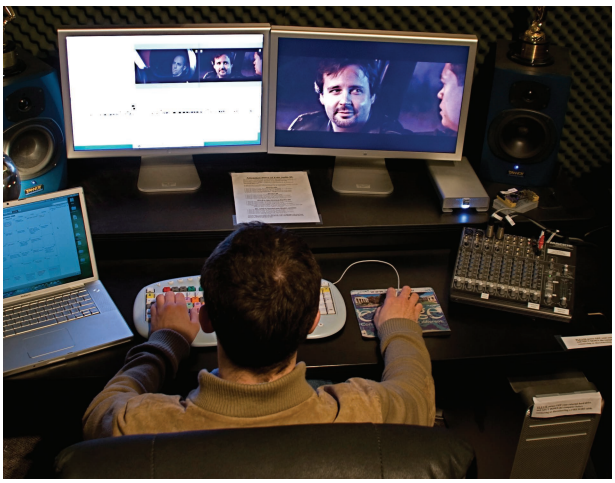

FIGURE 1.12 *Nonlinear editor.*
Source: Photo by Austin Brooks.

Postproduction Audio (Program Sound)

In addition to the natural sound from the action, productions may include music, sound effects, and narration received from a variety of sources.

As with picture editing, the audio may be selected and mixed live during the actual production. Alternatively, the final soundtrack may be built during the postproduction session.

Distribution

The whole concept of television has changed. In the past, viewers were required to watch by appointment, a time that was designated by the networks or other gatekeepers. Today, viewers are able to watch almost any program they want, on any viewing device that may be nearby, at any time. Online, DVRs, and mobile phones have provided the technology to allow the audience to view what they want, when they want (Figure 1.13).

Program creators also have the ability to distribute anything they create due to online channels and portals at no cost. A high school student can create a short film and get it seen by hundreds or thousands of people if it has a relevant subject and is created well. Unfortunately, even low-quality programs can go viral, seen by millions of people.

FIGURE 1.13 *Mobile phones, tablets, and computers are changing the way the audience watches television.*