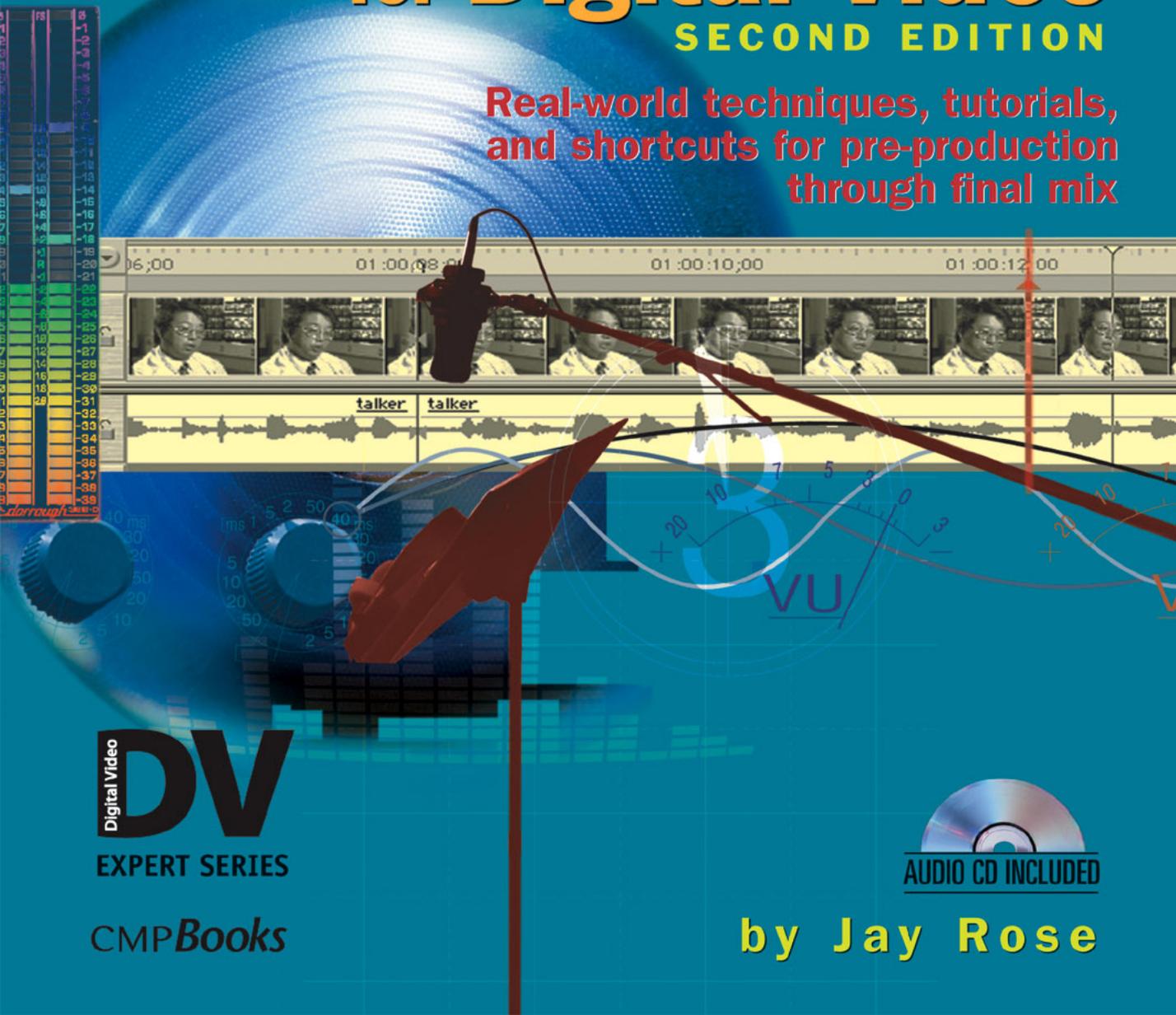# Producing
GREAT SOUND
for Digital Video
SECOND EDITION

Real-world techniques, tutorials, and shortcuts for pre-production through final mix

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AUDIO CD INCLUDED

by Jay Rose

PRODUCING GREAT SOUND for DIGITAL VIDEO

Jay Rose

Digital Video
DV
EXPERT SERIES

CMP**Books**

CMP*Books*

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Planning for Sound

The Need for Sound

Many videographers approach their projects as a chance to shoot interesting pictures and string them together in an effective way. Sound is secondary: after all, you weren't hired to create an *audio* cassette.

But communication isn't necessarily a visual phenomenon. Psychologists estimate that more than two-thirds of everything a person knows was experienced through their ears. The other four senses contribute less than 30%. Except for a few rare cases like some technical animations, no video can be effective unless picture and track work together. Neither is secondary.

This hasn't always been true for our medium. Obviously, early motion pictures had no sound. Producers were quick to realize the benefit of adding music, often sending suggested scores—with sound effects—to be played on piano or organ while the film was projected. It wasn't a soundtrack, but a live performance. Even some 30 years after sound films became popular, Warner Brothers still tested cartoons by showing them silently to preview audiences. If Bugs and Daffy got a laugh as mimes, Warner knew they had a hit. The genius-level contributions of voice actor Mel Blanc and composer Carl Stalling only added to the hilarity.

That was then. Today, network television is almost entirely driven by dialog. Try to imagine any popular program without sound. The most immediate and compelling use of pictures, breaking

news events, is accompanied by voice-over and surrounded by talking heads. There's even less visualization in sitcoms, game shows, soaps, and, of course, late-night talk shows; most would be equally effective on radio. Even visually-rich documentaries primarily use pictures illustrating a soundtrack. The only exceptions seem to be action/adventure shows . . . and most of their screen time is filled with dialog rather than explosions or car chases.

That's what people are watching, folks. And if sound is that important to the big-time media, it deserves some careful planning in smaller projects.

> ***The metaphors we choose tell us a lot.*** Ask your clients which they'd prefer: "A lot of *flash*?" Or, "More *bang* for the buck?"

People are Conditioned to Expect Good Sound

Maybe you think it's a corporate document or cable-access essay, but your audience knows they're watching TV. They don't have your commitment to the message, and they haven't sat through the lengthy development and production. The only yardstick they have for your project is what they saw on the tube last night.

Even if all they saw was an infomercial, it used good production techniques. The set was lit properly, shots were in focus, the editing made sense, and the sound was clean and easy to understand. The people who make a living doing this work (myself included) know their crafts, and the production process is well-defined. You need a TV show or a movie? I can call a bunch of my colleagues in other disciplines and we'll put together a darned good one. Of course, you'll have to pay us.

That may not be an option with desktop or low-budget production. There just aren't the resources to hire specialists for every job. A producer often has to write the script, simultaneously direct and shoot, and serve as both editor and mixer. This high distraction level means that sound is often neglected: video is more demanding—and more fun for producers with film or graphics training.

Wisely Invested Time Can Save a Lot of Money

Even if you don't have deep pockets, you can still have a good track. But you'll have to face the fact that you probably won't be paying proper attention to sound during the shoot, and plan accordingly. Don't expect sound to magically "happen," unless you've hired an expert sound person with experience in film or video, and even then, you should contact them for pre-production advice.

- Start prepping the track while you're still developing the script and budget. Know what it'll sound like, how you'll get the necessary elements, and what resources you won't be able to live without.

- Verify that the location and equipment will support the track you want.

- Make sure you have the skills you'll need. Know which buttons to push before you start production. Know which other buttons to push when things go wrong.

- Don't expect to point a microphone and get lucky, and don't expect that whatever you record will be fixable in post. The former never happens, and the latter can be expensive… if it's possible at all.

If you can hire someone to concentrate on audio during the shoot—even someone who isn't necessarily trained in that field—you've got a better chance of getting a good track. But you have to give them the opportunity to learn what they'll need; otherwise, they'll turn your location days into expensive learning experiences. Even a music studio or radio broadcasting background doesn't guarantee that someone will have the right skills.

This isn't rocket science. If someone has average intelligence and a cooperative attitude, they can learn how to gather good sound. But you'll have to lend them a copy of this book or some other training resource, and make sure they have adequate time to practice with the equipment they'll be using.

Take your pick:

- You can plan properly and train the people you work with.

- You can hire professionals to worry about sound for you.

- Or you can have an echoey, muffled track that says, "This video isn't as important as the average infomercial."

How a Good Soundtrack Can Help

Good sound adds believability

We spend our lives hearing the sounds around us. We've learned what voices sound like in a conversation, how environments can affect the sound of a voice, and what kind of noises everyday objects make. But a microphone doesn't hear the world the same way, and careless sound is a constant, subtle reminder that what's on the screen isn't real. It makes it harder for a viewer to identify with the character or the message.

Sound often has to be more realistic than picture. Nobody looks at a TV and assumes they're seeing a window into another world. We're constantly aware of camera movement and editing,

reminding us that a director has defined reality for us. It's what dramatists call the willing suspension of disbelief. But in a properly created soundtrack, the only unbelievable element is music.

Or look at it another way. You can build a small bedroom set in a corner of a giant studio and shoot an intimate and romantic scene there. Even though we're intellectually aware there has to have been camera, lights, and a lot of people around, we accept the actors' version of things and let ourselves get wrapped up in their story. However, if one of them murmurs, "I love you," and it sounds like they're in a gymnasium, the illusion is shattered.

I've seen videos like that. If you haven't, turn on your local cable access channel.

As technology gets better, maintaining the illusion becomes harder.

- When TV was black and white, and the sound came out of a tinny speaker, it was easy to accept technical limitations. We knew that Lucy's hair and Ricky's skin weren't really gray, but we didn't care. Or we filled in the red and tan ourselves.

- Color television made it harder to suspend our disbelief. While gray hair was acceptable for Lucy, orange wasn't. Lighting and makeup became much more important

- The same thing has happened to sound. The increased audio clarity of digital tape, better speakers and amplifiers in TV sets, and the prevalence of stereo conspire to let us hear more of the track. Since it's no longer obviously canned, it has to be right.

As budgets go down, spend proportionally more on sound

If you plan audio properly, it's much more cost-effective than video. You don't need sets or locations, the equipment costs less, and it takes less time to put it together. Good sound can add the professionalism you might not be able to afford with pictures.

- Voice-overs are cheaper to record than on-camera spokespersons are to shoot. The money saved here can buy you a more experienced (and convincing) actor.

- A small buyout score will cost as little as $10 or 15 a minute. Even a full symphonic score, played by a world-class orchestra, can cost less than $50 a minute from a needle-drop library. It's the cheapest special effect you can buy.

- Sound effects cost virtually nothing and can add realism to most video scenes. A few well-placed actors backed up by a crowd recording costs a lot less than shooting a room full of extras. The noise of an explosion, a flashing light, and a horrified on-camera reaction has *got* to be cheaper than blowing up a building.

Think about the Overall Track

A track is more than the sum of its sounds. If this idea appears strange to you, you're not alone. Too many Hollywood features are nothing but continuous noise. The current idea of Sound Design is to create a track with nonstop gunshots, car crashes, explosions, and alien growls—it isn't interesting; it's just loud. After the initial adrenaline reaction to sound pressure wears off, it isn't even exciting.

A lot of sound effects isn't necessarily a lot of effective sound. On the other hand, well-chosen sounds—including pauses and quiet ambiences as well as hard effects—can almost become another character: the track builds a world around your actors and helps the viewer believe the message.

Start with the Script

Many producers believe that sound happens in postproduction. *Good* sound begins when you first start writing the script. This doesn't mean you need to work in a lot of car crashes and laser zaps—most scripts have no place for them—but you need to think about the overall sound of the video while you're writing. A couple of techniques can help.

Listen to the words in your mind

Hear the script in your head while you're writing it. Don't just type

```
Sfx:      phone rings
Sue:      Hello? George! I've been waiting to hear from you...
```

and leave it at that. That's not what's going to happen on the screen.

Instead, *hear* the sequence. You'll realize that what actually happens is

```
Sfx:      phone starts to ring
Sue looks at phone, reaches toward it, picks it up
Sfx:      ring is interrupted
handset pick-up sound
Sue holds handset, talks into it
Sue:      Hello?
Sue pauses, then reacts to voice
Sue:      George! I've been waiting to hear from you...
```

You don't have to type all that on the script, of course. But hearing it in your head makes you realize how much this simple action affects the pacing. The scene plays slower than you might have originally thought. (If you're writing a commercial, this can be critical.)

Working this way also lets you explore other sound options. Is there music under previous dialog or as a transition into the scene? Ending the music on the first ring will have a very different effect than waiting until Sue recognizes George's voice. What about her timing? Does she pick up on the first ring, because she's really eager, or wait while she finishes some quick task?

Are there background sounds? If Sue is watching TV when the phone rings, what happens to its speaker? Perhaps she was in her office. Just by maintaining the ambience and conversations, you can tell us Sue's busy life wasn't on hold. She wasn't *really* waiting to hear from George.

What about her emphasis? Was Sue '*waiting* to hear from you,' because she's eager to talk to George? Was she 'waiting to hear from *you,*' because the other members of her workgroup have already chimed in? Don't leave decisions like this, which affect meaning, entirely up to your actors.

This is real Sound Design. At first, it'll take a little longer to write scripts this way. But you'll get used to the technique quickly, write more realistic dialog, and eventually find yourself writing better scripts—with fewer time-consuming revisions.

Be aware that sounds may need a reference

Often, sounds that make sense in the script become "widowed" in the track because they're hard for the viewer to identify. Many sounds aren't obvious unless there's a visual or verbal reference to them.

Imagine a film noir sequence in a cheap hotel room on a rainy night, with the sound of a neon sign flashing. A realistic recording of rain through a tightly closed window could easily be mistaken for static. The rhythmic bzzap of a neon sign only adds to that confusion. You can solve this sound problem with an establishing shot, perhaps a point of view looking out through the window to see rain splashing on the glass and part of the sign. If that's too expensive, you could have a character comment on the weather while rhythmically flashing a red light onto the set. Either way, the sound is established. After that, you're free to block the rest of the scene any way you want; viewers will remember that the noises mean rain and neon.

It takes a special kind of mind to imagine a score in your head while also thinking dialog and effects, but now's the time to think about how music will work. Don't just write "music fades up" on the script; specify what the music is trying to convey. If it's there to build an emotion, describe the emotion. If it's a bridge, describe it in terms of the attitude and style of the scene that's coming. Including details about music in the script can help you pace the actors when you're directing. It'll also guide the composer in postproduction, or—if you're using library music—help you find appropriate pieces faster.

Make Room for Sound

Real people stop talking every now and then, and when they do, we hear the world around them. Try to avoid writing dialog over noisy actions (Sue shouldn't be talking to another character while she hangs up the phone); this complicates mic placement and makes a good mix more difficult.

Even if a sound effect will be added in post, leave room for it in the dialog. Characters shouldn't start screaming at the same moment there's supposed to be a car crash or explosion—that just detracts from both sounds. Let them scream in anticipation as the car careens towards the wall, or react after the explosion settles.

Since different sounds have different frequency ranges, consider how their brightness or deepness might conflict. The metallic crunch of car against wall has a similar timbre to an adult male shouting, so you won't hear both if they're happening at the same time. But substitute either breaking glass or a female scream and they'll coexist together.

This also affects how you specify the music. Good scoring composers are very aware of how instrumental timbres fit in the overall track. When John Williams orchestrated the rolling rock in *Raiders of the Lost Ark,* he relied almost exclusively on high, staccato strings. That way the rumbles of the rock itself could show through. The low notes of his theme for *Jaws* aren't just ominous; they also leave room for the ocean and seagull effects. Even if your budget is limited to library cuts, you can use the same kind of thinking. Solo brass and winds occupy the same range as the human voice, so avoid that lonely sax player in the window if there's simultaneous dialog.

Sound and picture also have to make room for each other. If you want viewers to follow complex visuals, lighten up on the track. Consider the classic recapitulation at the end of many mysteries: as the detective finally describes what really happened, we see a montage of flashbacks showing the murder . . . but the sound effects in that montage are almost always underplayed. We may hear a gunshot and body fall, but that's about it.

Provide Texture Changes

When people know what to expect, they stop paying attention. This even happens at the subtle level of room reverberation and background sounds.

Long dialog sequences with static actors get very boring acoustically, even if the words themselves are interesting. Let the characters move around the room, so we can hear differences as their voices bounce off different surfaces. Move some of the dialog into a hallway or another room with different acoustics. Or let them continue some of the conversation outdoors or in their car. If your budget is limited to a single setup, at least give the characters a chance to stop talking and react to an off-camera sound. Instead of just walking a new actor into the scene, let

everyone else silently react as we hear the off-camera sounds of a car stopping, a door slam, and footsteps.

Music helps break up boring sequences, but may become a cliché. A stab after a dramatic line can give a soap-opera feel to a scene . . . but it might be just what's needed to let us think about a dramatic point. If a sequence is light on dialog, try specifying an underscore instead of matched sound effects to fill the pauses. If your video has a lot of music, leave some scenes unscored to make them stand out.

Remember the Medium

Even if you've got the money to spend, a business video's track has to be more limited than a theatrical film's. That's because film-sound designers have surround sound and much wider frequency and dynamic ranges to play with. Business videos have to play on a conference room TV. If you're relying on the slam-bang effects you saw in the latest adventure thriller, you'll be disappointed at the result.

Sound can be most ambitious in videos that will be shown only under controlled circumstances. If you know you'll be using high-quality digital or Betacam SP playback, in an auditorium with a good stereo system, you can rely on stereo and differences of loudness and texture to help carry your message. It's reasonable to think in terms of five or more sound layers: dialog, up-front effects, effects that aren't sharply on-camera, ambiences, and music. The stereo field and high playback quality help the viewer sort things out.

Broadcast sound is a lot less flexible. Even though most stations transmit in stereo, many cable networks are squashed to mono by the local cable system, to save money. And even if a viewer has a stereo set, it's likely to be off to one side of the room. In most stereo sets, the speakers are too close together to project a realistic stereo field; most of the smaller sets from chain retailers don't have stereo circuits, even if you can see two speaker grills on the front. Cheap VHS decks usually are stereo—but only when hooked up through their RCA connections to a stereo amplifier. The antenna output, which is how most viewers connect a VCR to their TV, is almost always mono. The truth is, *most stereo TV broadcasting isn't,* and it shouldn't be. Listen carefully to those high-priced network dramas: you'll find that most dialog is dead-center—even as the characters are moving around the room—and only music and effects are stereo.

Broadcasters also deliberately limit their dynamic range, so viewers can hear normal dialog without having to constantly compensate for screaming commercials. Don't count on more than three layers in a broadcast track, and pay careful attention to prevent dialog and foreground effects from conflicting.

The most limiting medium is Internet or CD-ROM audio. Expect many viewers' playback to be on tiny speakers, in noisy rooms. Internet compression techniques further muddy the sound. And

don't try anything at all ambitious if the track may be played on a laptop: even voice and music will fight each other.

It's Not Just the Writer's Responsibility

If you're creating the script, you've got a great opportunity to write for sound. But if you're shooting someone else's script, you must still go through the process of hearing it in your head, marking sound cues, and possibly breaking things up to make room for audio. It's the best way to assure that the track will go together smoothly and predictably.

Planning and the Bottom Line

Planning a track long before production will save money you can spend elsewhere in the video.

- If you know what sounds you'll need, you can get them at the shoot. It's a lot cheaper to grab an off-camera line, crowd walla, or a specific prop noise when you've got the actors, extras, and props already there.

- If you know what you won't need, you don't have to waste time recording it.

- If you think about the final track while you're shooting, editing will be smoother because you won't be trying to fudge existing footage to make room for audio.

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              Want to learn more?
        http://www.dplay.com/book/pgs2e
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