Mix It Up

A perfect mix requires technique, design... and paying attention before the shoot.

by Jay Rose, CAS

Splitsville! The track as edited with picture is shown on the top. Individual elements are split from it, in blue on the next three tracks. The resulting dialog premix is below it, in red. Sound effects tracks are pink. Note how almost every transition is cross-faded, with a particularly long crossfade at A. One sound effect was lifted from the production track (B) and moved to an effects track; it doesn't appear in the dialog premix. C is a phrase added in ADR... it's on its own track so it can be processed separately; the original production version of the phrase is kept on dialog track B for reference, but muted (gray) so it won't be in the premix. A small section of the room's natural background noise is lifted from a dialog clip and then looped (D) to fill the production effect and ADR line. The colors were added for this figure, but two clips were left in white to make it easier to see the prefades: a typical clip's fade-in and –out (E); and a momentary dip (F) to lower a particularly loud sound before the mixer. There are other tracks, but only the ones that are active in this scene are shown. During the final mix, the OMF and dialog split tracks will be hidden and muted.

There's a lovely moment after I finish mixing a film, if everything has gone properly. The director and I turn to each other and one of us spontaneously says, "Now, that sounds like a movie!" A movie–something you'd pay to see in a theater–sounds different from the commercials and TV documentaries I also mix. Unfortunately, it also sounds different from most student films, first efforts, and self-funded indies. It doesn't have to.

As far as I'm concerned, three things make a film sound like a movie: clarity, elegance of design, and never getting in the way of the story. While you can often spot when the track is distracting from the plot, the other factors are harder to identify. If my colleagues and I have done our jobs right, you're not aware we've done anything at all. This can make it harder for beginners to create good tracks: many necessary steps aren't intuitive, particularly to visually oriented filmmakers. On the other hand, in almost 80 years of making talking pictures, we've learned a lot about what works. There are dozens of specific steps to making a good track, and in major production centers like LA, each is done by a different specialist. But none of the chores are secret, and on smaller projects they can be handled by one person–sometimes, the writer/producer/director/editor. Even if someone else is finishing your track, you're the person who can make it sound better.

The trick to almost every successful track isn't something sexy like the scoring or foley sessions you see in "making of" documentaries: *The dialog has to sound right.* Memorize this. Believe it. Protect the dialog in every step from prepro to final mix. If the dialog works properly, you've got a good chance of making a great track. If not, it'll probably sound like amateur hour.

Have someone who understands sound go through the script before you even scout locations. They should look for potential

conflicts as well as sound design opportunities (see sidebar on final page). Often, they'll suggest minor changes, or quickie sounds or wild dialog lines to grab at the shoot: a few seconds then can save hours later. I've had lots of pre-shoot conference calls with the production mixer and the director. In almost every case, they've resulted in a better track for less money.

Expert advice can even save time and money at the shoot. For example, double system might not be necessary. Digital cameras used to be bad for recording dialog, because early models had poor audio circuits. The current crop of mid-price cameras is much better, and some are even good enough for theatrical dialog... when used properly. But don't expect it to be plug-and-play. An external mixer is usually needed, and somebody has to set things up, tweak menus, adjust the levels, and monitor the result. Double system still has advantages, but always takes more equipment, and more time in post.

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Don't assume, just because you've seen a certain kind of scene in a feature film, that you'll automatically get good results in a similar location. If possible, bring your production mixer or boom operator when you scout. They'll look for environmental noise sources, radio transmitters, and acoustic issues, and can either prepare to work with them or warn you of unworkable situations. Be careful your production doesn't bring its own problems, like noisy generators too close to the set. Remember, if you've lost shooting time because of predictable noises, you *haven't* been "waiting on sound"... you've been waiting on bad planning.

If you don't have an experienced mixer or boom op–and some zero-budget films are forced into this position–make sure whoever you designate has plenty of time to practice with the equipment and stand-in actors before the shoot. Don't expect a random production assistant to just pick up a boom and give you a good track. Location recording isn't a natural skill–you have to learn how to do it, and hone your talents with experience. There are links to tutorials and books covering the technique at my website, dplay.com.

Don't be afraid of commitment… sort of

Most big productions treat editorial sound as something temporary. The editors cut track along with picture, of course... but once they're finished, dialog clips are replaced with digital clones from the original production recordings. This step may be more a nod to tradition than a technical necessity: if dialog has been treated carefully in the NLE, there's no reason it can't be used in the final mix, or be intercut with alternate takes and isolated mic tracks from the production originals[1]. The important factor is not letting the NLE do any damage to the track, either in acquisition or by processing. But all that requires is an all-digital path (FireWire transfers, digital audio or file copies, rather than analog dubbing), removing effects and fades you might have added for temp mixes, and passing the whole thing to audio post as an OMF or similar interchange. If you do that, dialog can stay as clean as the first-generation originals. But remember: bad things can happen to quality or sync during transfers and hand-offs, so testing your specific hardware, workflow, and personnel is always a good idea.

One step they take in big narrative films might seem like wasted time, but almost always results in a better mix. It's track splitting: after the scene goes to audio post, a dialog editor will re-cut it, breaking dialog into tiny pieces on multiple tracks. Figure 1 shows an example, 45 seconds from a tiny budget indie. The original dialog, cut by the writer/director/editor, is on the top track. It's split into at least four other tracks with gentle fades on each clip, so different characters, angles, or dynamics in the performance can be treated separately. Then it's combined back into a single dialog premix track to be combined with effects and music. The caption explains some of the details.

Careful splitting of the production tracks can also make foley easier, as sound effects that were picked up with dialog can be isolated and used in the mix. Before you make foley cuesheets, add the backgrounds and stingers (location-specific sounds to help sell a scene, like ATM beeps or cash-register drawers). Often, small sounds in these wild tracks can be easily moved so they appear to sync with picture.

And remember that music can also be edited, even if you have a custom score that was composed to picture. Back in the days of mag film, it was common to slip musical cues a few perfs (quarter-frames) earlier or later during the mix, to catch the visual actions better. Today we do the same thing more precisely in a computer before the mix, and can change tempo or the length of sustained notes just as easily.

Mix in haste, repent at leisure

Mixing obviously requires mixing hardware, some way to play things in sync, processors to control everything from noise and equalization to reverb, and some artistic judgment. But it also needs two things that are often skipped in indie filmmaking: good monitors, and time.

The monitoring environment–which includes the room's acoustics as well as the speakers–is critical. You can't make decisions about voice quality, balance, or special effects unless you're hearing exactly what the audience will. And despite curmudgeons' complaints about badly-adjusted theaters, most venues these days have pretty good sound... as do more sophisticated home setups. Unfortunately, most mid-price speakers sold for personal studios aren't appropriate. They usually have hyped highs and lows to flatter contemporary music, are deficient at critical voice frequencies, and distorted across the band (distortion is less tolerable in dialog than in most music). You can't even use a cheap speaker with the idea that it'll sound like a consumer television, since each cheap speaker has its own set of problems. A properly designed mixing setup lets you hear exactly what's on your track, good or bad. And experienced mixers know what their rooms should sound like, and how they translate both to theaters and to broadcast.

The time factor is also important. Not only the weeks it can take to mix a large feature (indies are usually much faster), but *when* you

1. I won't get into the differences between 16- and 24-bit originals. Unless you're using today's best 24-bit recorders, resolution won't be much better than 16 bits anyway. The real advantage of 24 bits happens during processing and mixing, and if your software can handle of it, converting 16-bit originals to 24 bits in audio post will provide the same benefits.

spend the time. I've learned to never mix immediately after editing, and to revisit a show at least once after we all think it's done. Both give you a sense of perspective. If you've just finished building a critical sequence of sound effects or tweaked the music to catch every action, you'll probably make those elements too strong in the mix. Waiting overnight, or at least taking a meal break, will help you mix them properly without stepping on the story. Since most films are mixed in pieces, starting and stopping to make each scene perfect, take an overnight or a long break and then play the whole thing top-to-bottom to hear it in context. Make notes about things you might want to remix, but don't stop the film. Again, it's a question of perspective.

And once the film is finished, let it sit on the shelf a few weeks. Then watch it again, ideally with some people who have never seen it before. You'll probably hear things in the track–and realize others from the body language of your test audience–that you'll want to do better next time. And if you've done things right, you'll also be able to say "now, *that sounds like a movie*". **M M**

Jay Rose, CAS, has been creating soundtracks for more than 30 years. His books *Producing Great Sound* and *Audio Postproduction* are available at Amazon.com, and used in film schools around the world. For more info visit his website, www.dplay.com.

Design for listening

Once you take care of the basic story-telling, you can begin to have fun with sound design. Two examples from films I've done recently:

In the full-length feature *Two Weeks*, Sally Field gathers her adult children (including Ben Chaplin and Tom Cavanagh) as she's dying of cancer. Director Steve Stockman let me turn the medical devices of her home hospice into almost-characters. They're based on real oxygen concentrators, anesthesia pumps, and similar gadgets, but have almost human rhythms–as does the clock in her room–that change subtly as the disease progresses. I used at least three different made-up medical machines with different timbres, building chords that depend on the scene. It's subtle–to a casual listener, they sound like real machines, way in the background–but adds another emotional dimension to this comedy/drama.

Two Weeks   (MGM)

Scotch Hill (Jetpak Productions)

Director Mike Kuell tells his short, low-budge drama *Scotch Hill* (as two interleaved stories, one present-day and one six months ago. Even though both use the same location and share a character, I wanted them to have different textures. In this case, soundstage and processing provided the solution. The modern story is crisp and clean, with dialog that's properly centered and backgrounds that are wide stereo. But the flashbacks are narrow, slightly limited in bandwidth and dynamics, and treated like analog tape: they still sound like a movie (in fact, like most movies of a few years ago), but the viewer is aware that something, somehow, is *older*. Most of the flashback music was source, which also worked with this kind of treatment. Interestingly, the one scoring cue that extended into a flashback sounded wrong. It blew the flashback away, distracting us from the movie, because it was so clean. I had to morph it with a similar process during the transition... but when I did, the cue made sense.

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