

Sound in Film Production

SOUND-THE ESSENTIAL COMPONENT

Audio gives images a convincing realism. It helps the audience feel involved. As Dennis Baxter, sound designer for the Olympics, has written, “audio, in partnership with video, delivers a holistic experience with all of the intense emotion and interesting nuances to the viewer.”

The valuable contribution that sound makes to television cannot be underestimated.

In a good production, sound is never a casual afterthought. It is an essential part of the production’s appeal.

Audio has the power to help the audience conjure up mental images that enhance what is being seen.

sound—whether sound effects, music, or sometimes silence—can add to, or completely create, the emotional impact in a scene.

SOUNDS ARE EVOCATIVE

For example, consider an image of a couple of people leaning against a wall with the open sky as a background. If we hear noises of waves breaking and the shrill cry of birds, we quickly assume that the couple is near the seashore. Add the sound of children at play, and now we are sure that our subjects are near the beach. Replace all those sounds with the noise of a battle, explosions, and passing tanks, and they are immediately transported to a war zone. They might even appear particularly brave and unfazed, as they remain so calm in the middle of this tumult.

In fact, all we really have here is a shot of two people leaning on a wall. The wall itself might have been anywhere—up a mountain, in a desert, or near a replica in a studio. The location and the mood of the occasion have been conjured up by the sound and our imagination.

Successful audio is a blend of two things:

- **Appropriate techniques.**
The way the equipment is used to capture the audio.
- **Appropriate artistic choices.**
How the sounds are selected and mixed.

Both are largely a matter of technical know-how combined with experience.

THE NATURE OF SOUND

The world about us is filled with such an endless variety of sounds that it is difficult to believe each can be resolved into a single complex vibration pattern.

When several sources sound together, their separate patterns combine into an even more complicated form. Yet our eardrums, the microphone diaphragm, and the loudspeaker all follow this combined vibration; and more miraculous still, our brain interprets the result.

The simplest possible sound vibrations make a regular sinusoidal movement, and we hear the pure tones from a tuning fork, a flute, or an audio oscillator.

The faster this oscillation, the higher the pitch. Very slow vibrations (subsonic, below about 15 times a second) and extremely fast vibrations (ultrasonic, above about 20,000 times a second) fall outside our audible range. The frequency or rate of these vibrations is measured in hertz.

The stronger the sound's vibrations (the greater their amplitude), the louder it seems. Slight vibrations are inaudible, whereas extremely loud sounds can become painful to listen to, as they exceed our threshold of feeling.

Few sources emit "pure" sounds. Most are a complex combination of the main note (the fundamental) and multiples of that note (harmonics or overtones).

The apparent quality of a sound will depend on the proportions or relative strengths of these harmonics.

TYPES OF SOUND

Mono sound

In everyday life, each member of the audience is used to listening with the aid of two ears. As listeners compare these two separate sound images of the external world, they build up a three-dimensional impression from which the direction and distance of sound is estimated.

Nonstereo television sound is not as sophisticated as this. It presents a "single eared" monaural ("mono") representation of sound in space. The only clue to distance is loudness, and direction cannot be conveyed at all. When listening to mono reproduction, we are not able to distinguish between direct and reflected sounds, as we can when listening in stereo. Instead, these sounds become intermixed, so that the combined sound is often muddy and less distinct. In mono sound, we become much more aware of the effects of reverberation.

Because the audience cannot easily distinguish direction and distance, the mono microphone needs to be carefully positioned. Audio personnel need to be careful to consider the following:

- Too many sound reflections are not picked up.
- Louder sounds do not mask a quieter sound (particularly in an orchestra).
- Extraneous sounds do not interfere with the ones we want to hear.

Stereo sound

Stereo sound creates an illusion of space and dimension. It enhances clarity. Stereo gives the viewer the ability to localize the direction of the sound. This localization gives the audience a sense of depth, a spatial awareness of the visual image and the sound. However, because the speakers in television receivers are close together, the effect can be somewhat limited. Sound quality and realism are enhanced, but our impressions of direction and depth are less obvious.

ANTICIPATING SOUND EDITING

When shooting a scene, it is important to overcome the challenges of sound editing by anticipating the types of problems that will occur:

- **Continuity.**
Try to ensure that the quality and level of successive shots in the same scene match as much as possible.
- **Natural/atmosphere sounds.**
Record some general natural sound (atmosphere) and typical background sounds (wild track) in case you need them during postproduction.
- **Questions.**
When shooting an interview and concentrating on the guest, the questions of the interviewer may not be audible. Make sure the host has his or her own microphone or go back and have them ask the same questions after the interview so that they are recorded.

SOUND EFFECTS

Sound effects add depth and realism to a video production. They significantly impact the audience's experience. Interestingly, if a production is shot in a real location yet is missing the everyday sounds that occur there, the audience will perceive that it is a contrived location. However, if the same scene is shot in a well-designed television studio setting but is accompanied by the appropriate sound effects, the audience can easily be convinced that it was shot on location.

When you think of sound effects, you often think of special effect kinds of sounds like laser blasts or explosions. But most of the time, your sound effects will be incredibly normal, everyday sounds. Sound effects can often be used to increase the emotional intensity of a scene.

The barely heard sounds of a clock ticking, wind whistling through trees, bird song, passing traffic, the barking of a distant dog, or whatever other noises are appropriate bring the scene to life.

Sound editing is the process of cleaning up all the mistakes and problems in your sound track, adding music, sound effects, and any re-recorded dialog, and mixing and equalizing the whole thing so that it sounds as good as it possibly can.

Before you begin any sound editing, you need to determine what types of sounds you'll need. Your goal is to determine just what sound edits and effects will need to be created.

Sound effects can come from a number of sources:

- **The original sounds recorded during a scene.**

For example, a person's own footsteps accompanying the picture, which may be filtered, reverberation added, and so on.

- **Reused original sounds.**

Examples would include the sounds of wind, traffic, or children at play that were recorded during a scene and are copied and mixed with that same scene's soundtrack to reinforce the overall effect.

- **Foley.**

Creating sounds in a studio that can replace the original sounds. For example, introducing sounds of your own footsteps for the original ones; keeping in time with those in the picture. Door slams, footsteps, pouring water, clinking dinnerware, and all sorts of other "everyday" sounds that may not have been recorded during your shoot can be added by a foley artist. Foley work is usually done on a special stage equipped with props, cars, surfaces, and materials.

- **Sound effects library.**

Effects from a commercial audio effects library on CD or DVD. Companies like Sound Ideas provide vast, detailed collections of high-quality pre-recorded sounds. These can be essential tools for adding effects and ambience to your audio tracks.

- **Digital processing or sound sampling.**

Computer software offers a plethora of options for creating and manipulating sounds. With the use of a keyboard, these effects can be repeated and changed in an endless variety of ways.

HARD SOUND EFFECTS AND MUSIC

A hard sound effect is something short, precise, and fairly loud—a knock on a door, a burst of applause, a screech of tires. These sorts of sound effects startle the viewer a little bit and make it easy to hide a rough edit or smooth a jump cut. If your scene has music, it's a good idea to add it early on as you refine the edit. Music can change the pacing, add emotion, intensify action, and tell the viewers how they should be feeling. Many editors have a supply of CDs that they bring to a project as temporary soundtrack elements.

SPOTTING

When adding any type of effect, don't expect it to be perfect as soon as you drop it in. Most likely, you'll have to go through a lot of trial and error. There are no rules or numbers you can follow for these processes. Instead, follow your ear. It's the best judge of what sounds good. For each and every scene, you'll need to identify problems, needed sound effects, and how and where your musical track (if any) will be edited into the scene. This process of watching, assessing, and listing your sound requirements is called **spotting**.

To improve and blend in a sound effect, remember that you have all of the following to work with:

1. **Levels**

Make sure the level of the sound matches the intensity of what's on the screen. A small handgun shouldn't sound like a cannon, after all.

2. **EQ and effects**

You can use EQ to improve the quality of your sound effect and to try to separate it from other sounds in your mix. Other effects can be added to match the sound effect to its surroundings. The sound of dropping a bowling ball in a cathedral, for example, will require a sound with a lot more reverb and echo, than the sound of dropping a bowling ball in a 7-11.

3. **The mix**

You might be able to improve your sound effect by adjusting other tracks in your mix. Maybe it's not that your airplane sound effect is too quiet; perhaps your dialog is too loud. Play with your entire mix when editing in a sound effect.

ADR

Automatic dialog replacement is used to replace badly recorded sound, fix a muffled line, or insert dialog that could not be recorded on location. If you didn't record dialog during your shoot, ADR is where you will "dub" your film.

In a professional ADR facility, a projector or deck shows the scene to be rerecorded, then immediately re-winds and plays the scene again (without audio) and the new dialog is recorded. Sometimes, a continuous "loop" of the scene is shown; hence the term "looping."

The actor is usually cued with a series of regular beeps that count down to the start of recording. Their goal is to match their vocal performance to what they just saw on-screen.

Music

Music is often the most obvious sound effect, and we're all familiar with the experience of music providing important pieces of information. For example: A car drives up, a person we've never seen gets out, and the music suddenly becomes very ominous. Cut circus music into the same scene, and the audience will have a very different reaction.

Music is also used to set tone or atmosphere.

Sometimes, it is the musical score that carries all of the dramatic pacing in a scene. Try watching the last few minutes of Jurassic Park with the sound turned down (this works especially well if you've never seen the movie). You may be very surprised to realize how the movie doesn't really have a strong ending.

Instead, you're simply led to the ending by the musical score. Musical themes often remain in the memory long after the program itself has faded from the mind.

Music can have various purposes:

- **Identifying.**
Music associated with a specific show, person, or country.
- **Atmospheric.**
Melodies intended to induce a certain mood, such as excitement.
- **Associative.**
Music reminiscent of, for example, the American West or the Far East.
- **Imitative.**
Music that directly imitates, such as a bird song, or music with a rhythm or melody that copies the subject's features, such as the jog-trot accompaniment to a horse and wagon.
- **Environmental.**
Music heard at a specific place, such as a ballroom.

Typically, there are two types of music used in a feature: the music that underscores the action, and the source music that is meant to sound like it's coming from a source in your scene (radio, television, singer, etc.).

Most movies use a combination of original music composed specifically for the project, and pre-recorded music that is licensed from an artist and publisher.

Determining how much of each to use will depend on your project and the nature of the mood you are trying to create.

An original score can serve to bind themes and characters together throughout your feature. Through the use of repeating motifs and recurring melodies, a well-written score can provide a lot of narrative structure and continuity.

There are a number of reasons why you might choose to use pre-recorded material. Your characters might be listening to a piece of music, for example, or perhaps you've found a song that simply serves the scene better than your original score. Finally, certain songs, particularly music from a particular period, can do a great job of enhancing the authenticity of your scene.

Such pre-recorded material can also be mixed and layered on top of your original score. In addition to creating an interesting "soundscape," pulling a song out of the scene and into the score can be an effective way to move a scene forward, and join one character's action to something else in the movie.

License to Play

When licensing music for use in a film, you'll most likely have to pay a hefty fee. You'll also need to secure the rights, both to the music and to the particular recording that you want to use. Often the cheapest solution is to acquire the "performing rights," which means you can hire a band to replicate the song. Whatever your needs, it's really best to consult an entertainment lawyer for these sorts of things, and be sure to do so early on in your production. Otherwise, you could very easily end up with a movie that can't be distributed.

Most movies have two people involved in selecting and arranging music. A composer writes the original music, while the music supervisor selects any prerecorded material. Often, it is the music supervisor who will select a composer and help guide him or her through the creation of the music.

When you've finished editing your picture, you'll want to sit down and have a screening with your music supervisor or composer and discuss any ideas that you might have about appropriate music. In some cases, you might simply discuss what sort of feeling or emotion you're hoping to convey.

You may have already chosen some music to use as “scratch audio” during your editing process. You can use this to suggest music that you feel is appropriate.

Music Libraries

Just as there are tons of stock footage houses and sound effects CDs out there, there are lots of companies that specialize in selling music libraries on CD. With some, you pay a large sum for the CD itself (\$200 or so), and that purchase includes the license to use the tracks on the CD. Others charge per track and per minute.

The quality and variety of music available on library collections has improved greatly over the last 10 years.

In addition to ideas about mood and tone, you may need to give your music supervisor or composer a cue list showing exactly what pieces of music are needed, and whether or not they have specific timings. If there are musical events that need to happen at particular times (a dramatic organ sting when the villain enters, for example), then these will be listed on your cue sheet.

The Sound of Silence

Don't forget about the power of silence. Not only is silence sometimes more effective than music, it often makes the preceding and following music more powerful.

AUDIO HARDWARE

Your sound editing hardware needs are roughly akin to your production sound editing needs, though typically at a smaller scale. Though you can get away with performing all of your edits in software, you may want special hardware to augment the process.

Mixers

If you're more comfortable with sliders and knobs than with a mouse, then you may want a mixing board for mixing and balancing your tracks. Though you might have used a simple mic mixer or 4-track mixing board during your shoot, you'll probably want a beefier mixing board for your post-production editing.

Microphones

Obviously, if you end up needing to re-record dialog, or to record sound effects on location, you'll need microphones. For voice-overs and other dialog recording, your best option will be a good handheld mic. Whether you're choosing to record directly into your computer, or recording into a tape deck, be sure you have the necessary cables and connectors to hook up your mic.