

Sound Exercise Week 5 (adapted from Michael Rabiger's *Directing the Documentary*)

The object of this exercise is to accustom you to what's necessary for good voice recording, in terms of listening and understanding microphones and recording devices.

The situation we are thinking about is a voice recording in a room close to an office and busy traffic.

The basic components of sound recordings are

1. Signal (in this case from a speaker).
2. Ambience (the background sound of the location, which might include, traffic, a distant typewriter, voices, the hum from air-conditioning).
3. Reverberation (Sound waves that continue to rebound around the room by bouncing off sound reflective surfaces. These muddy the clarity of the new signal by adding in the still-decaying reverberations of the old).
4. Noise (hiss or interference inherent to sound systems often amplified with each generation of sound transfer and which might include hum or radio frequency (RF) interference).

The sound recordist judges a voice recording according to

- How well the signal is separated from ambience
- How much reverberation is mixing with the signal
- How much noise there is.

Intrusions on the desired signal are considered as a comparison or ratio. A high ratio of signal to ambient sound is desirable because it yields more intelligible speech. A low signal to ambience ratio threatens intelligibility and puts undue strain on the audience. **The golden rule is always to place a mike as close to the source (the speaker) as possible.** In film (video) this ideal is compromised by the need to hide the mike or to allow one's subjects the freedom to move.

The location recordist generally works with two main types of microphone, each reception pattern having its uses and drawbacks

Omnidirectional. Usually giving slightly better fidelity, it picks up sound equally from all directions, and is useful for covering spontaneous group conversations. The omnidirectional's big drawback is that it cannot help you separate ambient sound from signal. Lapel mikes are "omnis".

Directional. This type, often called cardioid for its heart-shaped pickup pattern, suppresses or "discriminates" against sound coming from off axis. During a shoot in a noisy street location, for instance, this can make a critical difference to intelligibility and audience comfort. Superdirectional mikes do not bring sound "nearer" or make it inherently louder; they simply discriminate even more against off-axis sound, but at some cost to fidelity.

Producing good sound means learning to hear the differences between common kinds of sound coverage and to recognize the effect of an environment. These experiments will help develop your ear and your analytic ability. Try listening at least once to the edited versions with your eyes closed (if there is time to edit them together). Editing your results is important as many sound inequities do not show up until juxtaposing makes them glaringly apparent.

Voice Recording, Interior

A seated person reads in a constant voice without holding the text between mouth and microphone. Use a camcorder setup with headphones, with both omnidirectional and directional microphones.

1. *Ambience*, Use a wide shot about 3 metres from the reader. Place a radio near the camera, Using either an omnidirectional or directional mike near the camera; listen through headphones; and set the radio sound level so it makes the reader difficult but not impossible to understand. Shoot 15 seconds of wide shot, medium shot and BCU, using an appropriately changed mike position for each. Edit the three shots together to illustrate how the signal to ambience ratio changes as the mike approaches the speaker.
2. *Sound perspective and reverberation*. Repeat the experiment without the radio playing. Shoot the various shots with appropriate mike positions, then reverse the logic by shooting a close-up picture with a wide-shot mike position. And a wide-shot using close-shot sound. Edit the results together in different combinations You will see that changing the mike positioning itself produces a sound perspective change and that close-shot sound is acceptable over a wide shot, but not vice versa. Notice the sound quality of the wide-shot. Its recording contains a lot of reverberant sound compared with that of the close-up.
3. *Microphone axis*. Take a continuous medium shot of your reader with the mike in shot directly before the speaker at around 1.3 metres distance. During a continuous reading point a directional microphone on axis (directly at speaker's mouth) for 10 seconds, then rotate it to a position 90 degrees from axis. Hold this for 10 seconds, then rotate it a further 90 degrees so it now points at the camera and away from the speaker. Hold this for a further 10 seconds. Listen to recording, then make an edited version that shows only the three static mike positions. Notice as the mike leaves the axis, how the voice quality becomes thinner and the reverberant sound increases.
4. *Speaker Axis*. Speech comes out of a person's mouth directionally. Shoot a medium-close shot of the reader taking 10 seconds of speech with a mike (omnidirectional) handheld two feet in front of the person's face. Try not to introduce handling noise. Keeping the mike at the same distance, circle around to the side, holding steady there for 10 seconds. Finish by circling to the rear of the speaker, again holding for 10 seconds. Listen to recording, then edit the three positions together. Compare consonant clarity and fidelity (faithfulness of recording) to the best recording and note any changes in ratio of signal to reverberant sound.

Exterior

5. *Perspective*. In a quiet open space, use a directional or omnidirectional hand mike to shoot a speaker first in close, then, wide, shot (camera about 6 metres distant). Edit back and forth between the two shots for an illustration of sound perspective changes that this time lack reverberant sound.