




Sound for Choral Educators

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I. Things to avoid:

1. \$\$ – Buying the cheapest microphone cables
2. \$\$ – Wrapping cables around your arm
3. \$\$ – Not loosening your mic stand before you move or adjust it
4. !! – Not having *some* sort of power conditioner to filter electro-magnetic and radio interference, and minimize ground loop issues.
(*Furman's SS-6B* is the cheapest option at \$25.95)
5. !! – Running electrical cables alongside your mic and instrument cables
6. Using normal patch/instrument cables to plug your monitors/mains in.
7.  Getting too close to the mic – the blessing and curse of “Proximity Effect”
8.  Being too far away from the mic
9.  Pointing the mic at speakers
10. Not having a separate “monitor mix” for the performers vs. the audience
11. Squeal alert: If you do have separate mixes, having your monitors’ volume up too loud
12. Squeal alert #2: If putting a mic in the piano, having the piano too loud in the mains or monitors
13. Squeal alert #3: Pointing the mics toward the monitors or main speakers
14. Having the “Gain” (the knob that allows sound to come into the mic) set too high, so that the amount of sound is too much for the microphone, causing distortion.
This is a huge mistake when you are recording too!
15. Know the basics about Equalization (EQ). Each room in which you sing is different – some rooms, stages and auditoriums will cause certain frequencies to *over-resonate* and ring long after the instrument/voice has stopped playing/singing. Most mixing boards have good EQ control these days. If you know a couple of pieces of knowledge, you can your room:
 - i. Remember that ‘A’ above middle ‘C’ is the frequency known as *440 Hertz*. (A440) Every octave is a doubling or halving of that number. The frequencies in between are not equally divided, so there is a bit of guesswork involved.
 - ii. Knowing this information, you can find – on the piano, for instance – the pitch that is ringing in the room. Then figure out the *approximate* number of Hertz of that pitch. Then on your overall EQ, turn that frequency down a little or a lot!
16. If you are EQ’ing a microphone, make small adjustments with wider bands of EQ, and bigger adjustments with smaller bands, notching out the offensive frequencies.

Recording/Sound Terms to Be Familiar With:

Condenser/Dynamic Microphones: There are 2 big over-arching categories of Microphones. **Condenser mics** usually pick up a very detailed sound, are more fragile, and are usually more expensive. High quality studio microphones are often condenser mics. Meanwhile, **Dynamic mics** usually pick up a less detailed sound, are less fragile, are cheaper, and can record louder sounds without distortion. Most live performance mics are usually dynamic mics.

Phantom Power (+48v) – an electrical charge that you must apply to Condenser mics to make them function, to “shock” the mic’s diaphragm into working

Preamp (often labeled as **Gain/Trim**) – the first way to boost the level of a microphone. A little adjustment often goes a long way... Gain/Trim affects the level in both the mains and monitors.

Volume Faders – the (final) way to increase the signal of a microphone before it gets to the main speakers. *Only* affects the volume in the mains, NOT in the monitors.

Pad – a switch that reduces the amount of signal (volume)

“**High-Pass Filter**” or “**Low-Cut Filter**” – Reduces the amount of low frequencies (below a certain point)

1/4 inch / TRS or TS cable – used to often referred to as a patch or instrument cable to plug in guitars, keyboards, etc... TS is only mono, TRS can be mono or stereo.

Speaker cable – is often thicker (thicker gauge copper wire), so it can carry MUCH more signal than a typical patch cable. Do not use an instrument cable to plug in your mains and monitors – it will most likely distort!

RCA Cable – what you use to plug into a DVD player/stereo. (red, white, yellow)

XLR Cable – Another name for a Microphone Cable

Pans – controls that allows you to shift one of the sounds to the left or right. *Not* used often in live performance, more often in mixing a studio recording.

Aux Sends and Returns – takes sound signal from each channel on the mixer and sends it somewhere (without affecting the original amount of sound). We typically might send signal through Aux Send 1 to our monitors, and we might send the signal through Aux Send 2 to the reverb/effects unit.

Master Aux Send (or Master Aux Return) – a knob that turns up the entire monitor sound, or the entire reverb (or other effects) send, or whatever you have going through a particular Auxiliary Send.

Since 2008, Jeremy has led in-person and online summer workshops for vocal educators that offer 3 credits of Professional Development. For more info on 2024 dates and locations, head to www.JazzHarmonyRetreat.com



II. Rookie Mistakes in Recording

1. You do not want to sing/perform/record in a rectangular or square room, if you can help it. This is why good recording studios have rooms with strange shapes.
2. Whatever the shape of your room, acoustic treatment helps with echo, especially with “slapback” echo from higher frequencies. Foam squares are cheap at \$1 per 12-inch square. For lower frequencies “bass trap” acoustic treatment in the corners of your room can do wonders to help. If you don’t have money for this, duct tape a thick blanket against the wall.
3. Don’t record when there is any external noise of any kind: appliances humming, outside wind noise, air conditioning fan, etc...
4. DO record to a click/metronome track... this is an excellent skill to practice to create a more professional recording. Do not make the mistake of thinking your sense of time/tempo is “good enough” for a recording.
5. Do NOT have the click/metronome track too loud. Before recording the entire song, try recording just 60 seconds of your song with the click track on – especially a quiet section of the song – then listen back with intensely with the click track turned off to be sure the clicking sound did not “bleed” out of the headphones into your mic. If it did bleed, use better around-the-ear headphones or turn the click track down.
6. If multiple instruments are recording at the same time, use a baffle/gobo (movable barrier), a blanket or a closet to try to isolate the two instruments, so there is not “bleed” from one instrument into another instrument’s mic. Because the sound waves are larger and can travel around/through things more easily, the hardest frequencies to block out are the lower ones. For instance, if you are recording your voice at the same time with a bass player in the same room, the bass player’s sound *will* get into your microphone.
7. Do not forget about panning your mix!
8. Turn *down* parts of an instrument’s EQs rather than turning them up all the time!
9. *Don’t listen to your mix (or listen to a live concert) when you are near a wall or a corner.* The bass frequencies will sound 2 to 3 times louder!
10. Listen to your mix at different volumes!! If you listen too loud, you will hear an exaggerated amount of bass frequencies, and if you listen too quietly the bass frequencies will be the first to disappear. If you want to learn more about this phenomenon, research “*Equal Loudness Contours*” or the “*Fletcher Munson Curves*”.
11. Do use different kinds of headphones and speakers to test your mix... car speaker, home stereo, and electronic devices. If you mix on really expensive equipment, you are assuming that your audience has really expensive equipment. In likelihood, they are probably listening through crappy earbuds or through their computer speakers.
12. When you get close to finishing your mix, use a *reference recording* to compare your mix’s EQ, volumes, panning, etc.... This could be one of your previous song mixes, one of your favorite singers/bands’ recording that you think would sound similar.