

RECORDING TIPS

Creating Better Recordings in the Home and Studio

BENEFITS and USES

High-quality recordings are incredibly important for musicians in today's technologically-driven world.

They can be used for:

- Competitions, auditions, and festivals
- Practicing: able to listen to greater musical details, provides greater feedback for students, create accompaniments and backing tracks
- Online lessons and masterclasses
- Mementos for friends and family of performances
- Can be used as a creative outlet for students and teachers

SMARTPHONES

While smartphones are incredibly convenient and portable, they are designed for the voice and are often not a good choice to record music.

- Usually utilizes *microelectromechanical system* (MEMS) microphones—these small microphones have trouble capturing lower frequencies clearly.
- Multiple microphones: useful for capturing conversations, but can record unwanted noise (leakage) when recording music.
- *Noise gates*: cancels large amplitude (volume) changes—great for conversations in busy areas, but impractical for recording music.
- Small *sampling rate*: Sampling rate is the number of 'samples' of sound a device captures per second. The more samples, the higher quality a recording. Smartphones use a small sampling rate to conserve on memory usage.
- Apps are available on iOS and Android that allow you to manipulate noise gates and sampling rate. External microphones can also be used to increase the recording quality.

LAPTOPS

Laptops (and desktop computers) do have microphones, but have many of the same problems as smartphones.

- Utilizes MEMS microphones.
- Designed to capture the voice for video and audio calls.
- USB microphones (both inexpensive and expensive) can eliminate many of these issues.

MICROPHONES

Understanding the different types of microphones, associated terms, and their strengths and weaknesses is important.

- *Polar Patterns* describe the direction the microphone picks up sound:
 - *Omnidirectional* - picks up sound equally in all directions
 - *Bidirectional* - picks up sound equally in the front and the back, but not the sides
 - *Cardioid* - picks up sound from the front and the sides
 - *Hypercardioid* - picks up sound from the front, the sides, and a little from the back

- There are three main types of microphones:
 - *Dynamic* - cheap(er) and durable, they are useful for loud instruments/amplified instruments and live vocals.
 - *Ribbon* - designed to capture the voice, more sensitive than most dynamic microphones, but is meant for "in-studio" recording (often used in radio).
 - *Condenser* - captures a much wider frequency range, but requires phantom power and is generally more expensive. They are often preferred for recording acoustic instruments and studio vocals.
- You may need other equipment, including: XLR cables, microphone stands, digital-audio interface, mixers, or adapters.
- Each microphone has its own *frequency response range*. Depending on the voice type/instrument, some microphones may be better than others (i.e. a different microphone may be better suited to record flute vs. double bass).
- Handheld recorders are a good middle-ground, allowing convenience and better recording quality than smartphones and laptops.

PLACEMENT

The placement of the microphone relative to the sound source can affect many different aspects, including the blend, volume, frequency range, sound quality, and reverb.

- Good concert venues can be more flexible with placement, and can help create a better overall sound quality.
- *Reverb* is the persistence of sound, *leakage* is sound captured from unwanted sources, and *background noise* is unwanted noise from the environment (such as HVAC systems).
- **Voice** - placing the microphone closer to the source will result in a more *focused* sound with less *reflection*. Accompaniment and the genre of music may affect the placement.
- **Strings** - place the microphone between 3 inches and 6 feet away from the f-hole. Accompaniment will affect the placement.
- **Winds and Brass** - the best placement is often 1-3 feet away from the the bell. Too far away and you might capture too many echoes, too close and it might sound "honky." Aim for the middle of wind instruments to better capture the overtones.
- **Piano** - place the microphone near the soundboard, or about 7-15 feet away, depending on the room and desired sound.
- You will need to experiment with placement to get the type of sound that you want.

EDITING

Editing recordings is commonplace, and should not be ignored. While you can't always edit, some simple techniques can enhance your recordings.

- Free DAWs (digital audio workstations): Audacity, Reaper, MusE, Rosegarden
- Paid DAWs: Ableton Live, Logic, Pro Tools, Digital Performer
- *Trimming* - splicing audio tracks can allow you to trim out unwanted noise/errors. Though it can create *artefacts* (unwanted 'blips' in the track), with practice it is very effective.
- *Fading* - applies an automatic fade in/out of the audio track.
- *Synchronization* - line-up multiple audio tracks, or audio and video recorded on separate devices.
- *Noise Reduction* - gets rid of unwanted frequencies from the specified area of the audio track.
- Never edit tracks for submissions that explicitly disallow it—people can tell!