Microphones and Capturing Audio

Strong Audio

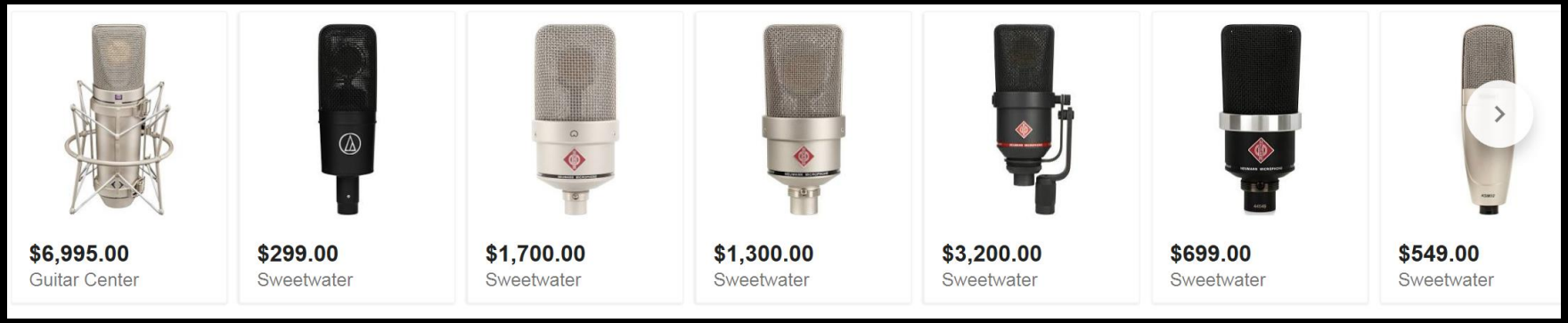
*“Audio can make or break **ANY** film.”*

*Audio makes up **51%** of a film viewer’s experience.*

*Unless it’s bad audio. Then it makes up **95%**.*

Condenser Microphones

- For capturing a more accurate, "flat“ or more neutral/pure sound.
- Better at reproducing subtle nuances of quieter sounds.
- widely used in studio recordings-- most commonly used for recording acoustic instruments and voices
- HOWEVER, they can OVERLOAD easily if volume levels are too high



Electret Microphones

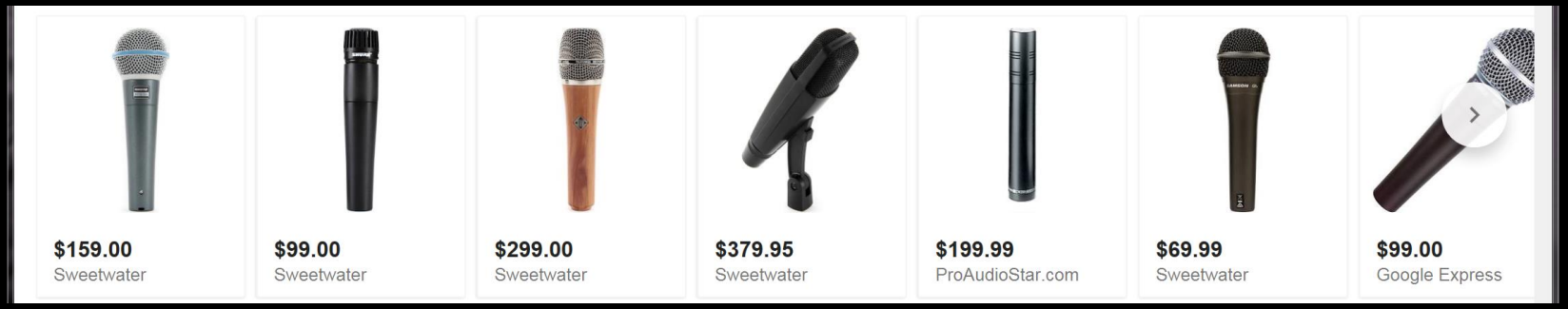
- A smaller and cheaper cousin to the Condenser.
- Used in most SMARTPHONES.
- Better at reproducing subtle nuances of quieter sounds.
- Like condensers, electret mics can OVERLOAD easily if volume levels are too high.

Lavaliere Clip-on Mics

- ☑ Commonly used for video shoots and television talk shows.
- ☑ Easily placed close to the direct source of someone's voice
- ☑ inconspicuous and portable.
- ☑ does not work well for recording live concerts or for ambient field recording.
- ☑ one mic can capture only one voice

Dynamic Microphones

- Dynamic microphones **amplify** certain frequency ranges more than others.
- They do **not** overload or distort as easily as condenser microphones
- Tend to be less expensive than condensers.
- Dynamic microphones are recommended for **live** concerts and studio or radio voice-overs.



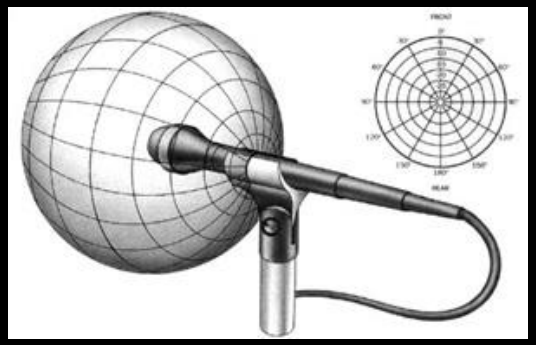
Directionality and pick-up patterns

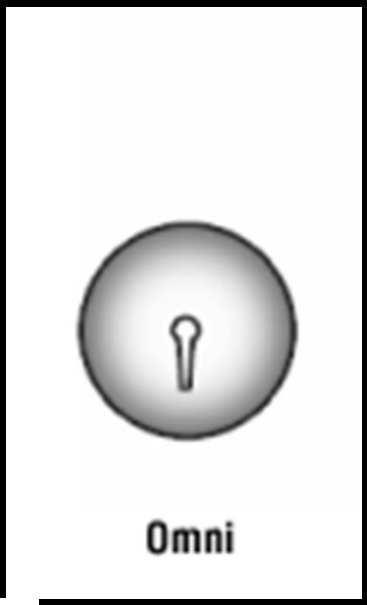
Four different types of *pick-up patterns*

- A microphone **pick-up pattern** is the acoustic pattern which a microphone collects the best quality of sound.
- Need to chose the best mic for the job.
- Garbage in – Garbage out.

Omnidirectional Pick-up Pattern

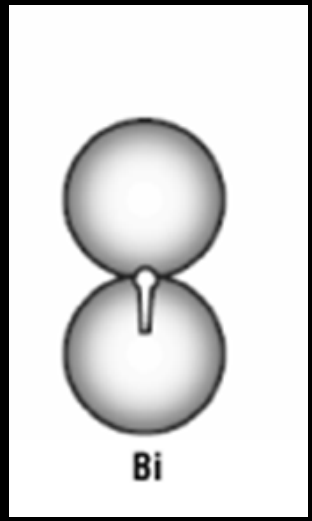
- Omnidirectional microphones capture sounds equally from all angles.
- They are commonly used for recording multiple instruments and voices.
- Frequently used as “table mics” in a conference room.
- They can pick-up a lot of ambient noise.





Bi-directional microphone Pick-up Pattern

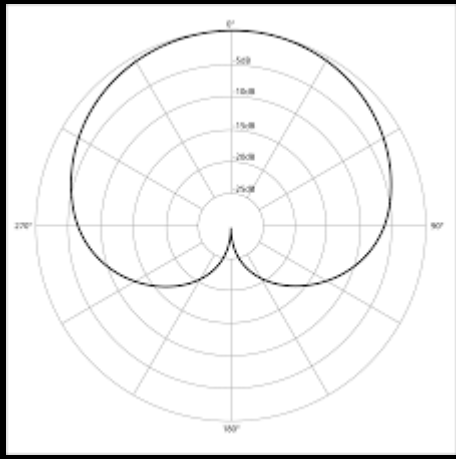
- ✓ **Bidirectional** microphones capture sounds directly in front and in back of the capsule.
- ✓ A bidirectional mic is commonly used to record vocal duets or is placed above an acoustic instrument.
- ✓ Bidirectional microphones reject sounds from the sides.
- ✓ They can also exhibit what is known as the ***proximity effect*** **which** amplifies the bass frequencies of a voice as it gets closer to the microphone.
- ✓ Often employed by radio DJs and singers.



Cardioid microphone Pick-up Pattern

- **Cardio → Heart**
- **Cardioids** capture the sounds directly in front of the capsule.
- Cardioid mics are used for live-concert vocal recording and amplification because the pick-up pattern does not capture loud, distortion-causing sounds such as those from a PA system.
- ***Proximity effect***. They also amplify the bass frequencies of a voice as it gets closer to the microphone, creating the proximity effect.

Cardioid



Shotgun Microphone Pick-up Pattern

Hypercardioid Pattern

- Shotgun microphones contain a recording capsule embedded in a long hollow tube.
- The capsule picks up a highly exaggerated *hypercardioid pattern* of sounds far in front and in back of the microphone.
- Shotgun mics are used for recording in an environment where a narrow pick-up range is needed.