

Choosing a Microphone for Public Speaking Events

Background:

Wakefield Camera Club have been having problems with their current lavalier microphone which has meant looking at either changing to a new system or a replacement. There are different types of microphone available, all with different benefits, so choosing one to suit your needs requires a bit of thought.

This brief guide will hopefully give you a helping hand if you are looking into using a microphone system (nb. I am not a trained audio technician, this is just the result of searching for a replacement for Wakefield Camera Club's microphone system and the issues I encountered).

Types of Microphone:

There are many types of microphone systems available, I won't go into all them, however for public speaking situations as we have at camera club meetings / RPS advisory days etc there are 3 types of microphone systems available.

- Hand Microphones
- Head Set Microphones
- Lavalier (clip on) Microphones

It is also worth noting that the microphone system will need a suitable sound board to connect to. At Brookhouse WMC where WCC meet, there is a sound system available that we can connect to, so check the venue you have has something similar or you will need to consider purchasing a suitable sound board.

Hand Microphone

These are the most commonly used singers on stage and are fairly robust. They can be wired or wireless and can range from around £100 upwards. We have found at WCC that our wireless microphone works really well, has not had any problems with feedback, however the batteries do not last very long (about 30 minutes constant use).

This is not so much of a problem for our use however, as it is mainly used for introducing the evenings meeting. What we have found to be a slight issue is that if the person using the microphone is not familiar with using a hand microphone, they will tend to move their head as they speak to the audience but not the microphone, which means sound is lost temporarily until the microphone is returned in front of the mouth.

Headset Microphone

These microphones work with the mouth piece being on a small thin wire connected to an adjustable head piece that fits over the users ears. The wire is connected to the transmitter pack worn on the belt or waistband which sends the signal to the receiver unit which is connected to the sound system. Prices range from around £45 upwards. Pricing usually

reflects quality and range / bandwidths / features available so be careful if looking at a cheaper option.

The benefits of this system are that the user can move around the stage freely without having to hold a microphone. The microphone is in the correct location for picking up speech reducing any dropping of vocals. What we have encountered is that users are not keen on wearing the headset as it can be uncomfortable, especially when wearing for a period of time so bear this in mind if this is an option you would like to use.

Lavaliere Microphone (Clip on or Lapel)

The lavaliere microphone works in a similar way to the headset microphone with a wireless transmitter located on the belt or waist band with a thin wired microphone that can attach to the users clothes by a small spring grip. The location of the microphone can be adjusted to suit the user so it is quite flexible, and the benefits include free user movement around the stage without having to hold a microphone. Prices start at around £150 upwards, again cheaper sets may seem a good option, but frequent use will take its toll on cheaper units and or the features and bandwidth may be limited.

Problems we have faced are (and this may just be an issue with the set up at Brookhouse WMC or the age of the equipment) that we have had infrequent feedback problems, sometimes caused by the user catching the wire whilst gesturing.

Microphone Directionality

One other aspect to consider when choosing a microphone is the direction that the microphone picks up sound from. This can be in the form of 3 ways –

- Uni Directional - This picks up sound from 1 direction usually from the front to avoid picking up ambient noise.
- Bi Directional – This type of microphone picks up sound from the front and rear, and are used in a situation like a radio interview between 2 people.
- Omni Directional – This type of microphone picks up sounds from all over, and as such can pick up ambient noise and can provide feedback from the main speakers so location and volume control need to be controlled.

Microphone Techniques

Proper microphone technique is vital for success in operating a sound system. While the basic principles are universal, different types of microphones require different methods to prevent unnecessary problems. Follow these simple tips to help maximise sound quality in any meeting or conference situation.

- Speak in a clear, natural voice.
- Aim the microphone toward the mouth and away from unwanted sound sources.
- Avoid excessive handling of the microphone, drumming on the table, shuffling papers, etc.

Handheld Microphone

- For a balanced, natural sound, position the microphone 4 to 12 inches from the mouth and slightly off-centre to minimise breath noise.
- Being too close to a unidirectional microphone causes a boomy sound due to proximity effect. This excessive bass can be controlled with EQ (low frequency roll-off).
- Similarly, speaking too directly into the microphone introduces breath noise. Use an accessory pop filter to control issues from a close-talking user.
- Handle the microphone only by its body. Do not grab or cup the microphone grille, as this will compromise its directional properties.

Lavalier Microphone

- Place the microphone as close to the mouth as practical, preferably just below the neckline.
- To stay “on mic,” rotate the body rather than turning the head.
- Lavalier microphones transmit even subtle noise into the sound system. Once positioned, do not touch the microphone or cable.
- Avoid placements beneath clothing or where anything may touch or rub against the microphone.
- Use a pop filter, especially with unidirectional lavalier microphones.
- Avoid direct breath on the microphone.

Headworn Microphone

- Do not place the microphone directly in front of the mouth, which would cause breath noise.
- Position the microphone just off the corner of the mouth, but not touching the face.
 - Adjust the headband for a secure and comfortable fit.
- Use a windscreen/ pop filter.
- Don’t tap on or hold the microphone.

Feedback

Microphone feedback is that horrible squealing sound produced when the signal from the microphone is amplified and picked up again from the speaker, creating a continuous loop. The signal then continues to amplify at an extremely fast rate until it causes an unpleasant sound.

Here are a few steps you can take to prevent feedback from occurring.

- Move microphones closer to sources. Have the presenters sit closer to their microphones. Let the microphones do the work.
- If possible, move loudspeakers closer to the audience.
- Reduce the number of open (live) microphones. Every open microphone is another audio path for potential feedback and unwanted noise.

- Use directional microphones and loudspeakers. Position micro phones so that the desired sound source is on-axis, using the pickup pattern's null point to exclude unwanted sounds.

Final Thoughts and Further Reading

Hopefully this has given a bit of insight into the complicated process of choosing a microphone, however further information can be found at the following websites –

http://www.yamahaproaudio.com/global/en/training_support/selftraining/pa_guide_beginner/microphone/

http://www.shure.eu/support_download/educational_content/wireless-microphones-basics/How-to-find-the-right-wireless-microphone

Shure Pocket Guides <http://www.shure.co.uk/support/downloads>

***These notes were compiled for and on behalf of Wakefield Camera Club
by Steve A Wood and Robert Bilton. 4th March 2017***