Sound recording: managing a recording session

KS3/4/5

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Introduction

Welcome to the final resource in a three-part series covering recording in the classroom (for the previous two resources, see *Music Teacher*, April 2023 and July 2023). This time, we'll move on to the actual recording sessions themselves.

In this resource, we'll focus on how to make the recording session run as smoothly as possible. To do this, we'll break the process down into clearly defined roles for the students, a clear set of goals to be achieved, and a lot of general advice in how to run a successful session. If everyone is clear about their job and what they're required to do, there should hopefully be less time wasted and a better-quality end result.

Roles within the recording process

Engineer

The engineer's job is simply to get the best recording possible with the musicians they're working with. To do this, there are a lot of technical requirements and prior knowledge needed in order to operate the recording equipment in the correct way, to maximise what can be achieved. With this in mind, familiarise yourself with the equipment you'll be using before the sessions starts.

Here are some key points for the engineer to remember. When setting up:

- Set things up in the tidiest way you can. Try to avoid tangles of cables and a messy working environment, since this confuses matters and makes setting up and packing down take longer.
- Make notes of your cabling so that you know where all the leads are going – label them like this:
  - Instrument – type of mic used – input number/channel number (e.g. Acoustic guitar – SM57 – input/channel 3).
  - Or if you had to use a DI Box, you could label it: Keyboard – DI box 1 – input/channel 5.

If you have a mixing desk, you would normally mark this at the bottom of each channel on the desk. Quite often now, however, you either don't have a desk, or you don't have the space to write the information in, so it's more helpful to write it in a notebook or in a text file on the computer. The inputs and channels don't necessarily have to correspond, but I'd highly advise that they do to avoid adding a layer of unnecessary confusion.

When recording

- **Create and name all the tracks before you start to record:** this may seem an obvious thing to do, but forgetting to name the tracks you're recording on happens frequently, and can cause a lot of wasted time further down the line when you're trying to search for an audio file you've recorded only to find there are hundreds with very similar names, and no way of finding out which track they came from – AUDIO_01, AUDIO_02, etc.
- **Watch the levels and err on the side of caution:** don't push the input levels too high and risk going into the red and ruining a take. It's far better to be a little quieter and minimise the chances of digital clipping. Check the levels through at every stage – as they come into the desk/audio interface and also as they come into the program you're using.
- **Record everything:** once you're set up, get the band to play through the track to warm up, but make sure you record it! This is useful for a number of reasons. You can listen back to each track to see if the sound is right, and if you notice anything during the warm-up you can change it before you've spent time doing multiple takes. You can also advise the band on anything they might need to change on their settings before you get too far into the recording process to alter anything. Finally and crucially, you may also get a perfect take during the warm-up! It's surprising how many times a band uses their first take on the final recording as the spontaneity is often lost by doing multiple takes of the same song.
- **Communicate clearly:** if you're in one room and the musicians are in another, you need to tell them what you're doing. If you need them to take a five-minute break while you sort something out, then let them know. Musicians get fidgety if they don't know what they're waiting for. Equally, when you're going to record a take make sure everyone knows and is ready to go.
- **Sort out the click track:** if you're using one, make sure you have it ready and be prepared to be able to change the sound of the click. Sometimes the pre-selected sound is not cutting enough to make it audible above the other instruments. If this happens, you'll need to find another sound that has more attack, like a cowbell or woodblock. It's usually fairly straightforward to change this, but if it isn't you can consider building a click track as an instrument track and inputting the notes yourself instead, or create a drum loop if this is more suitable
- **Decide on effects:** as a general rule, if an musician plays their instrument with a particular effect on it and uses the same effect most of the time, don't try and change this situation by asking them to take the effect off. Some common examples would be:
  - **Guitars:** overdrive/distortion is always from the amp or pedals, except in very certain cases. Also expect a guitarist to add some reverb at source and use other guitar pedals to add chorus/flanging/phaser, etc. The only reason to add these in the mix stage would be if you want to affect more than just the guitar, or you wanted to create a stereo effect.
  - **Keyboards:** these will quite often have effects built into the sound, so you should tend to go with whatever sound the keyboard player likes to use.
  - **Electric piano:** it may be worth turning off the reverb of the piano and adding one afterwards so it sits in the room with the other instruments better, unless it's integral to the performance.
- **Compressors and EQ:** as a general rule, I like to compress vocals when recording them into the desk. A nice compressor/preamp helps to warm the sound up a bit, and also provides a good, consistent level. If you don't have an outboard compressor to do this, don't worry: you can just record without compression and maybe add some later in the mix stage. EQs can also be used in this way, but I would advise against it unless it's for a very specific reason: EQ can just as easily be added afterwards, and if you add EQ before, you can't take it away if it doesn't work.

When recording

When you're recording takes, there are a few things you need to be familiar with before you start:

1. **Software:** make yourself familiar with the software you're using. You probably know how to make audio tracks, but do you know how to group them? You should always group instruments that have multiple mics together (like drums) to make your life easier. Also make sure if you're recording something in stereo that it's being recorded to a stereo audio track.
2. **Colour coding:** it can be a great help to colour code each instrument track so that you can quickly see what you're working on.
3. **Drop-in:** familiarise yourself with the drop-in function (used when you're overdubbing a part onto a track, usually to fix something in the track, but you want to hear what's already on the track until you 'drop in' the new recording). Know how it works so that you can do drop-ins if you need to.
4. **Playlist:** learn how to use the playlist function when recording. This allows you to do multiple takes of a recording that all start at the same place. The playlist moves each additional recording you do into a playlist that you can select from later. In practice, this allows you to do multiple takes of a song, then later go back and choose the best performance for each instrument. This means that if one instrument makes a mistake in a certain part of the song but the rest of the band plays well, you may be able to replace it with one of the alternative takes of that instrument without changing the rest of the band. Obviously this works very well when the band is playing to a click, but it can also work without one. It's very important to take notes (with the help of the producer) that you can use later to select the best takes and performances.
5. **Adjusting levels:** try not to adjust levels as you're recording unless you plan not to use the recording – leave this until the end of the recording and change it for the next take.
6. **Mistakes:** if the band makes a small mistake and stops playing early on in a recording, don't stop the recording and start again. Keep it rolling and just tell them to carry on. Equally, make them aware that small individual mistakes don't matter, as the rest of the band may have played well and the mistake can easily be replaced.
7. **Good takes:** if the band records a good take, tell them that the take was good, but do another one straight away: they will relax a bit, which can often lead to an even better take.
8. **Keyboard shortcuts:** it's worth learning a few of the commonest keyboard shortcuts, as you'll get very tired using the mouse to navigate all the time. You'll also save yourself valuable seconds.

Headphones

A good headphone mix will make everyone feel more comfortable and play better. It's important to take the time to get the mix sounding right for everyone (within the capabilities of the system you're using). Be aware that if you have the equipment to do two different headphone mixes, it's usually the drummer who will require a different mix to the one used for everyone else because of the volume of the instrument they're playing. Be careful with headphones with different impedance, as you won't want to deafen anyone or destroy someone's treasured in-ear headphones.

Producer

- **Write notes:** as you're listening to each take, write some brief notes. These should include any obvious mistakes you've heard, fluctuations in tempo, or problems with tuning or the sound of instruments. Also include positive things such as indicating where the band played well, or where someone played a good fill or solo. You will also need to decide which takes are the best, so help yourself by writing notes on how you thought each take went overall, and whether you think any mistakes can be fixed, or are not noticeable enough to get away with leaving or masking in some way.
- **Communication:** communicate with the band, and let them know when they've played something well. Equally, if there's something that isn't working, tell them so that they can either work on it quickly, or be aware of it for the next take.
- **Tempo:** know the tempo of the song so you can advise the band if they're playing too slow or too fast. (Don't be too picky, though, if the tempo is slightly off but the take is good.)
- **Take control:** if something isn't working, take control of the situation and advise the band what to do (as best you can). Offer praise when needed, and be the extra member of the band that they can come to for ideas and encouragement.

Musicians

- **Tune up, then tune up again:** this should be obvious, but it's often forgotten about in the excitement of the session. So many recordings over the years have been ruined because someone didn't tune up properly and it wasn't spotted until it was too late. Furthermore, don't think because you've tuned up once that your instrument will stay in tune for the whole session – check it regularly.
- **Warm up:** make sure you have enough time to warm up properly, so that you're ready for when the engineer presses record.
- **Get your sound right:** you should already know from pre-production what your sound is for the song you're recording, so get this ready early on and don't keep everyone hanging around while you adjust the controls of your new guitar pedal (for example).
- **Know the part:** this is a given, and has been discussed before, but make sure you know that part inside out.
- **Be prepared:** make sure you have everything you need for the session, and carry spares of things you might need. This might be picks, strings, capos, sticks, valve oil, rosin, lyric sheets (which should be printed, not on a phone) and more. Don't assume that because you've never broken a string or snapped a stick that it won't happen in a recording session.
- **Don't noodle!** Once you've got your sound right and you're in tune, stop playing. It can be incredibly frustrating if no one can communicate because they continually have to tell other musicians to be quiet, and it can waste a lot of time.
- **Think about volume:** don't play too loud, and listen to what the engineer and producer are telling you. Don't go in thinking that guitar amps have to turned up to 11 to sound good, and that drums have to be hit as hard as possible. Even if there might be some truth in that, in practice it doesn't work in a studio, as the bleed onto other instruments will be so great that it will make the tracks unusable. Please also consider everyone else's hearing!
- **Unwanted noise:** check your instruments for buzzes and other unwanted noises. These are primarily an issue for for drums, but they can occur on any instrument. Make sure you've deadened any unwanted noises and that your instrument sounds right for the recording.
- **Eye contact:** make sure that eye contact is possible between all musicians. Even if a vocalist is in another room, it's better if they can see the rest of the band (but this may not always be possible).
- **Mobile phones:** turn your phones off. Not on silent.

Troubleshooting

When it comes to troubleshooting problems, the first thing to check is the signal path. Most of the problems that occur in recording are down in some way to something in the signal path not working. Here's an example:

- Recording source: Guitar amplifier
- Mic used: SM58
- Connected via: XLR
- To input: 1

There are four parts to this, and any one of them could be the reason you're not getting level coming through to the computer:

1. Guitar amplifier isn't working or is turned down; guitar lead isn't working; guitar itself isn't working; pedals don't have power or are not working; pedal leads are not working. (Hopefully the guitarist can solve this problem themselves.)
2. Mic isn't working.
3. XLR isn't working.
4. Input isn't working.

If all of these possibilities are fine, you should go on to check that the computer is recognising the audio interface, and that the inputs are enabled, etc. To diagnose whether it's the mic/XLR/input that isn't working, you need to change one thing at a time, testing each time until you find the culprit. Make sure you then put the broken lead/mic away so that it doesn't get back in with all the working leads/mics again.

There are numerous problems that can occur with computers. There isn't space in this resource to go into all of them, but here's a selection that might occur:

- **Audio interface or USB keyboard not working:** the simplest answer is to unplug it and plug it in again. You may need to restart the software and/or the computer before doing this. Check within the audio settings of the program that you're using and make sure it's being recognised and that the inputs and outputs are properly configured.
- **Latency:** this will depend on the power of the computer system and interface that you're using. If your computer is quite slow, you can change buffer sizes to give you less latency. This won't allow you to run as many tracks and effects, however, so there's always a compromise. It's worth spending a bit of time researching this further and trying out different settings to see what works best for your set-up. You can usually monitor directly from the audio interface, too, which may be the best option if you have a slow computer.
- **User profile:** if you're still having difficulties with your computer set-up and it's on a network, it may be that the user profile you're using is not compatible with the audio software. One solution is to work stand-alone (not on the network) if possible. If it's possible, you may have to consult your IT technician. (Ideally you should do this before you get to the recording session itself.)
- **Distortion/clipping:** to ascertain where the distortion is coming from, look at every part of the signal flow and make sure that nothing is overloading (receiving too much signal). A couple of common problems might be:
  - Headphones are distorting but quiet: check the output going to the headphone amp is not too high.
  - The level coming into your DAW is too high: check the input level gain on the audio interface and mixing desk. Usually you will have a light to show that the input is clipping. You may have a separate piece of software that controls audio inputs, so this is worth checking too.

General advice and session goals

What are you intending to get out of this recording session? Make sure that your aims are manageable – and achievable – and always go for quality over quantity, in other words a better-quality recording instead of trying to cram in as much as you can. This latter approach often leads to stressed students (and teachers) and substandard results.

If you then find you have time left over at the end of your recording session, you can move onto something else (e.g. overdubs), but if you're going to do this, get the students to pack away the equipment that is no longer needed first so that you have an easier pack down at the end.

If you're managing the session, try to help the students to stick to the time frame they planned out in pre-production by subtly reminding them when they're taking too long over something and need to move the session on. Moving away from the plan that's been put in place will invariably add time and make it harder to finish the recording.

Remember to leave time to pack everything away, and make sure everyone knows how and what to pack away – otherwise you might end up staying behind untangling leads for hours!

- You'll achieve better results if everyone is comfortable and relaxed. Try to keep everyone's excitement levels under control, and make them aware that there's often a lot of waiting around when doing a recording, so they should be prepared.
- Don't leave all the engineering jobs to one person. It's pretty straightforward to set up mic stands and plug things in, so set up a small engineering team that can all help with these jobs.
- Bring refreshments and food to a longer session: you might not have time to go out and get some.
- Have regular short breaks. The ears and brains of everyone involved need to be rested regularly otherwise there's a danger that you may become 'ear blind', and therefore unable to make good decisions simply because you've heard or played the same thing over and over again.
- Make sure everyone is on time to the session – there can be no excuses for lateness as time is always precious, and in a proper recording studio also expensive!

Recording is a fun process, and with careful planning, you can have a productive session than runs smoothly and achieves all your goals. Also remember that practice makes perfect. Mistakes are always going to happen: it's the way you and the students respond to them and learn from them that will make the experience all the greater for everyone. Good luck!