Successful SOUND for Video
Series written and produced by Mik Parsons

FOREWORD

ViT's Successful Video Production is a series of programmes designed to help in the learning of a wide range of Video Production techniques:

CAMERA
NON LINEAR EDITING
LIGHTING
SOUND
TV NEWS
DRAMAEDITING

Although equipment is very much a part of the production process, the emphasis of the ViTseries is on principles and creative techniques rather than specific hardware.

The programmes, each around 30 to 40 minutes, are full of examples shot at a wide variety of locations covering aspects of both drama and documentary. The presenter is BBC broadcaster, Sean Street and programmes are subdivided into clear sections each beginning with a Topic Heading, and ending with a list of the Key Points covered.

This study guide uses the same Topic Headings as the video and expands on issues raised in the video. There is also a series of projects set within the text. The aim is to keep things as inexpensive and accessible as possible whilst working to the highest possible standards.

How to Use the Programmes
Although the study guide is designed to be read in conjunction with the video material, each can also be used separately. The recommended approach however, is to watch the first chapter on the video up to the Key Points and then read the booklet under the same Topic Heading. Hopefully you will be keen enough to try the projects suggested but obviously this will depend on your circumstances and personal aims. Once you're ready, start viewing again, stop when you get to the next Key Points, and so on.

The series was written and produced by Mik Parsons who is Senior Lecturer in Video and Interactive Media Production at Bournemouth University.

Mik began his career with an MPhil in Electronics but has since worked extensively within the Arts and Media. In addition to his professional experience within video production, he has also worked and lectured in design, computer graphics, music, animation, and interactive media.

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INTRODUCTION

We often think of television as being mostly about pictures, but it's easy to forget that sound is just as important. Sometimes sound provides most of the information. A spoken commentary, for example, is often chosen to give chunks of information more efficiently than pictures. In drama, dialogue is often used as a quick way to develop parts of the plot. Getting the right balance between picture and sound is a skill that writer, director and editor must share.

For example, a commentary about the life cycle of the otter set to a picture montage of otters just swimming and playing won't work. The commentary must integrate with the pictures and vice versa. Likewise the crime sleuth, who gives a résumé of the investigation as he dons the handcuffs at the end of the story, is likely to send an audience to sleep. The story needs to be told by pictures and action as well as sound.

Non-verbal sound can be equally powerful and can be used in subtle ways to reinforce or contradict the pictures. Music, sound effects, and background atmospheres are unfortunately often left to the later stages of editing before they are even considered. Good programme makers recognise the influence of non-verbal sound, and many will take the trouble to plan for it much earlier in the writing and pre-production. Instead of leaving sound to the final stages of post-production a Sound Designer may be involved in pre-production to plan the style and integration of music with effects and atmospheres.

Sound reciording within video production can be divided into two distinct phases:

sound recorded during production
sound recorded during post production

The ViTprogramme begins with a look at different microphone types in common use in the production phase.

Projects
You will need:
Off-air video and radio recording and playback facilities.

1) Make a recording of a popular ‘soap’TV programme and of a comparable radio programme. Compare the two and comment:

a) on the audio scripting differences (listen to the TV programme without the picture. Does the story still work?)
b) on the technical recording differences (eg. listen to the back ground sounds and the quality of the voice recordings)

2) Choose a number of environments to visit eg. coffee bar, lounge, bus station, park etc., and in each environment, write

down a list of the different sounds you can hear. Notice how you can focus your hearing and selectively isolate the different sounds. When we listen to recorded sounds, this focussing doesn't work in the same way. Spurious sounds are more distracting (especially in stereo).

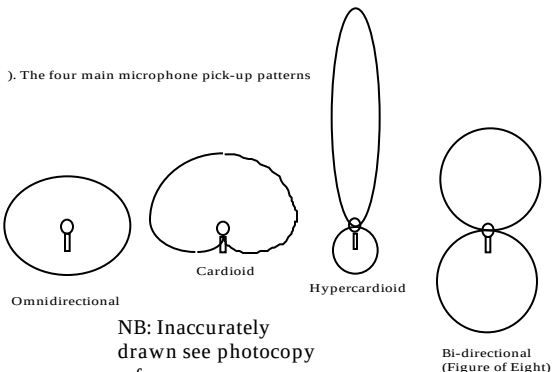
If you were building each atmosphere sound from scratch, which sounds would you include and which would you leave out?

Find the quietest place you can think of and comment on what, if anything, is preventing absolute silence.

MICROPHONES

An important feature to look for when choosing a microphone is its directional characteristic. Some microphones are designed to be highly selective and some will pick up sound from all round. Fig (1) shows the four basic pick-up patterns:

Fig ( ). The four main microphone pick-up patterns



NB: Inaccurately drawn see photocopy reference

Most camcorders have a built-in microphone. Sometimes they're quite small and almost omnidirectional and sometimes they're much longer and more directional mics, but either way they're limited in their usefulness. An omnidirectional mic is good for picking up general atmosphere sound but probably not very good for speech unless the speaker is very close. Because they pick up sounds from behind as well as in front, they sometimes pick up noise from the camera transport and zoom motors (as well as the occasional grunt from the camera operator).

A directional mic would seem to be a better choice particularly for recording speech, but they are not so good for general atmosphere because the sound will change depending on where the camera is pointing. This can seem quite strange if the camera is panning. Some camcorders have a built-in mic which is switchable between directional and less directional - a

much more useful arrangement.

In most situations though, you'll get better results if you use an external microphone specifically chosen for the job in hand.

THE HAND-HELD MICROPHONE

The most common users of hand-held microphones are interviewers, singers and commentators. The mic needs to be:

simple to use
insensitive to handling noise
robust
high quality

Hand-held mics usually have a 'cardioid' pick-up response. That is to say they're more sensitive to the front and to the sides. They need to be held in close in order to keep a good balance between wanted and unwanted sounds. This means they are often seen in shot and are only suitable in situations where a mic in shot is acceptable.

The most common hand-held mics work on the 'moving coil' principle (a bit like a loudspeaker working in reverse). Because of their electro/mechanical construction, they don't need batteries and are fairly resistant to impacts. A certain amount of practice is needed to get the best results though. If you are interviewing someone, it's quite distracting if you keep swivelling the mic back and forth between questions and replies - particularly if you mistime the movement and lose the beginnings of sentences.

Singers and public address announcers often make the mistake of getting too close to the microphone in an attempt to be louder. This often causes unpleasant popping sounds as blasts of exhaled air enter the mic. In particular watch out for the spoken letter 'p'.

Close proximity also means that loudness is very sensitive to changes in distance from the mic and the bass response is much higher making the sound 'boomy'. A sports commentator working in a noisy football crowd will often use a special commentary mic with a lip-guard which will keep the mic a predetermined distance from his mouth as he speaks. The advantage of this is that the bass response and sensitivity can be accurately set for that distance and the mic can be safely used close-up for maximum isolation. The disadvantage is that it's appearance in shot is rather intrusive and so it's only really suitable for out-of-vision commentary.

Key Points. Hand Held Mic
The Hand-held mic is:
• usually cardioid in response
• often seen in shot
• good for interviews

• easy to use
• robust

THE GUN MIC

Variously known as a rifle mic or a line mic, the gun mic has a highly directional pick-up response. In general, the longer the microphone, the more directional its response.

The most commonly used gun mic is about half a metre long and is often concealed in a large fluffy wind shield because of its sensitivity to air movement. You need to point a gun mic accurately at what you want to hear. Its performance drops off quite sharply away from the main axis - particularly the higher frequencies, and so it needs a conscientious operator who will continue to aim it carefully when the speaker starts to move around.

A gun mic will also pick up what's beyond the speaker. Distant traffic may suddenly seem much closer than you thought. A noisy air vent in the background will be audibly brought forward in the sound perspective. Interestingly, a gun mic can help in this situation since it can be easily repositioned to keep the unwanted sound off-axis and so less audible.

Background sound can vary enormously depending on where you point the mic, either because of distant sounds in the environment if you're outside or, if you're inside, sound reflections from different walls will give different background sounds. Swinging the mic from one speaker to another may give strange whooshing effects as the background perspective changes. For this reason the gun mic is often not the best choice for interior work. A cardioid mic will give a more consistent sound perspective when moved between different positions.

Nowadays the gun mic is commonly seen in vision during news reportage situations when it's essential to isolate a speaker from a noisy environment. It has become a visual icon in reportage but this is ironic since it's really designed to be used out of vision.

In drama it's very useful when the shot is wide. The operator can position the mic just out of frame and carefully aim it at the sound source. In closer shots the mic can, if necessary, be easily repositioned. To get as close as possible to a speaker, it's usually better to point the mic from above. If the camera operator changes from a close up to a mid shot, the upper border of the frame changes much less than the lower edge and so the mic is less likely to suddenly appear in shot (Fig 2). Check though that background sound from below, shuffling feet for example, is going to be less of a problem than sound from above, perhaps from an air conditioning system.

In order to get the mic into a high position, you'll probably need a lightweight extendible boom or 'fishpole'to mount it on. Handling noise tends to get amplified down the length of the pole, so you'll need to hold it quite still.

The gun mic should be mounted in a shock absorbing cradle anyway but if handling noise is still a problem, now is the time to switch in a bass filter. Most gun mics have a bass-cut filter switch in the body of the microphone. It's often a good idea to have some bass filtration because although low frequency rumbling and handling noises may not always be audible in a set of headphones, they can easily cause distortion on the tape. The level meters will indicate if you have overload problems. (It may be possible to replace some of the bass during post production where the control of tone correction is likely to be more sophisticated).

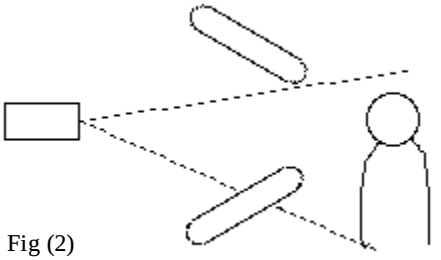


Fig (2)

Positioning and aiming the gun mic carefully is fundamental to good sound quality even though you may wind up in some uncomfortable positions. Remember too that the human voice is also directional and that it comes from the mouth and not from the top of the head! Few people realise how difficult it is to aim a mic on the end of a boom, since it's impossible to 'sight 'it. In fact only the actor can really tell if the mic's aimed correctly.

Key Points. The Gun Mic
The Gun Mic is:
• sensitive in one direction - uni-directional
• usually held out of shot
• large and needs to be aimed carefully
• good for location drama

THE PERSONAL MIC

Sometimes called tie-clip mics, these are small and unobtrusive and are designed to be attached directly to the speaker. The larger battery container is farther down the cable and needs to be concealed somewhere safely - often in a pocket or a waist-band.

Be particularly aware that the mic is probably attached to someone nervous who knows very little about microphones, and so you will need to be diplomatic about concealing the cable in their clothing and about suggesting that

they don't thump their chest in mid-sentence. Make sure that you also remember to disconnect them when they want to move off the set. The thin cable between the mic capsule and the battery holder is particularly vulnerable, so keep this well protected and use more substantial cables to provide extensions to the recorder. Always be aware of the hazards of trailing cables and tape them down if you can.

Sound quality is usually very good but high frequencies will suffer a little if the mic has to be completely concealed beneath clothing. A far greater problem is likely to be clothing rustle so listen carefully for this, particularly if the speaker is moving around. It's useful to have some 'low tack' sticky-tape to hand so that you can try different places to fix the mic capsule.

In interview situations, the personal mic is ideal if you have got the opportunity to fit it properly and you are interested in the replies rather than the questions. (Questions are often shot separately with the camera and microphone reset for the interviewer). Because they're small and discreet, it's often acceptable to see a tie-clip mic in vision. Some recordists like to mount them upside down (the pick-up response is omnidirectional and so it won't be affected), partly to reduce the possibility of breath 'popping' and also because the cable can be clipped more tidily.

In a drama situation a gun mic will often be the preferred choice, but if environmental sound is causing problems you may decide that personal mics will give cleaner results. If several characters are speaking in a shot, then they will each need a separate microphone and you will need to combine the sounds by feeding all the mics through an audio mixer. If the actors have to move around, then cables will cause further problems (unless you can fit them all with radio transmitters). For one or two characters and limited movement though, concealed personal mics will give good clean quality sound. You may also wish to record each actor onto a separate audio track in order to gain greater control over the sound later in post production. Be aware though, that when using several mics there is sometimes a problem created by phasing effects if the mics are in close proximity to one another. This may not show up until you attempt to mix the sounds in post production.

Some recordists will choose to use a combination of mics. eg. radio mics on each actor and a gun mic to cover the wider shots. Although the initial set up requires more time (and equipment), this will give good flexibility and allow the director freedom to change from wide to close shots without resetting the mic positions.

Key Points. The Personal Mic
A personal mic:
• gives close up sound detail
• can be concealed
• is good for interviews and drama
• can be intrusive and awkward to use

Whatever combinations of mic you decide to use, plan your decision in

advance and be consistent. Even the simple decision to change the mic position within a scene can, if unplanned, mean that the whole sound perspective will alter and the shots will be difficult to cut together later in editing.

Projects
You will need:
A camcorder and video playback facilities
A variety of microphones
(Avideo edit suite)

Get a friend to read a newspaper extract out loud whilst you record them on video using a selection of different microphones. Try the following variations and comment on the results.

a) vary the mic distance from the speaker
b) vary the mic orientation in front of the speaker
c) put the newspaper between the mic and the speaker
d) move the speaker in relation to the environment eg. nearer to the wall, or standing in a doorway.

(If the differences in sound quality seem quite subtle and hard to detect, try editing the shots together so you can hear the differences across the cut points).

RECORDING SYNC SOUND

In film production, sound and picture are usually recorded on separate machines - sound via a tape recorder and picture via a camera. The process of matching the sound back to the picture in post production is called 'synchronising'. On a close-up of someone speaking, the synchronisation (or 'lip sync') has to be accurate to the frame otherwise it looks noticeably wrong or 'out of sync'.

A video camcorder records sound and picture simultaneously onto the same video tape and so the sound will automatically be in sync. Whether the sync sound is of any use or not is entirely another matter. In some situations it may not be important. For example the audio on a shot of a distant fisherman may be disrupted by aircraft noise but it can be replaced later with some cleaner sound from a later take if necessary, or maybe the sync sound won't be required at all.

If the sync sound is important then its quality is down to the skills of the sound recordist who may often have to work in difficult circumstances. The recordist's ideal of an acoustically controlled environment and a large, high quality microphone suspended 20cm in front of the speaker's mouth, is fine for radio and voice-overs, but not possible on the set of say, an Edwardian drama.

Choosing the right microphone and where to put it is an important decision.

If you choose to go for the highest quality sound and the greatest amount of control, then you'll need to use close-up microphones. In drama, this probably means individual tie-clip mics. With two speakers and two tie-clip mics, you could record one on each audio track (most video formats have at least two audio tracks). It will take a bit more time and care later in post production because you'll need to balance the individual sounds and perhaps add in reverb, background atmosphere, and effects.

On the other hand it may be faster and less intrusive to use a gun mic on the set, and certainly with careful use this will give excellent results and may not need so much attention in post production.

Although it's possible to plug up to two microphones directly into the camera, it's difficult to monitor and adjust the recording levels without getting in the way of the camera operator. A sound recordist will usually prefer to use a portable mixer into which he can feed an array of microphones if necessary. If the mixer has two outputs, then they can either be set up to operate as a stereo mix or split into two separate mono signals.

A location audio mixer opens up the choices for the recordist and gives greater independence. It's possible to mix the microphone signals into a single output whilst on location but remember they can't be unmixed later. In a drama scene wide shot, the recordist may, for example, use a gun mic or even two gun mics for the main coverage, but also conceal a couple of personal mics somewhere in the set to cover areas where the actors would otherwise be off-mic. The mic levels could be worked out during rehearsal and the sound mix done live during the take. A location mixer usually only has level controls and very little in the way of tone controls other than bass cut filters. (This is fine for speech but music recording usually requires a more sophisticated mixer - or alternatively a multitrack recorder allowing the instruments to be mixed later.)

Recording sync speech on a very wide shot will always present a challenge. If the distance is so great that the gun mic can't get close enough, or trailing cables are visible from the personal mic, then you may need to use a small radio transmitter for each mic and attach a receiver to the mixer. If you haven't got access to a radio mic, then you could try attaching a concealed small DAT recorder to your speaker. This will require some extra time during post production to accurately match the sound back with the picture.

Recording sync. Key points

- Use both tracks for stereo, or for separated mono
- A mic on each track gives more control in the edit
- A portable mixer gives:
    - more control and independence
    - the chance to use more mics

RECORDING NON SYNC SOUND

A non-synchronous sound recording is sometimes called 'wild track' because it's done independently of the picture. The video shows an example where two characters are conversing in the distance on a cliff top but because we can't see their lips moving their speech has been recorded separately and added later. Notice in this example that the close sound of the voices although unnatural in real life, is acceptable in video drama because we are more interested in what they are saying than the authenticity of the sound quality.

Another form of wild track sound is the recording of ambient background or 'atmos'. In a drama this should be recorded at some quiet break during the shoot or perhaps at the end before the mics are moved. It's often useful during the finer stages of sound editing. An unwanted cough off-screen during a quiet scene can be cut out but it will leave a gap of dead silence. A little patch of 'atmos'will fill the gap and restore it to its natural quiet ambience. Atmos is also useful in an editing situation where you have cut from one speaker to another but the change in position of the gun mic is producing a slight change in the background sound. Again a layer of atmos behind can be blended in at the join to make the transition less noticeable.

During the interview example on the video, an atmos recording of the weir was used to mix into the background on the wide shot where the close sound of the personal mic isolated the speaker too much from his background. In the drama example, the piano music was also recorded later and mixed in as background under the dialogue. It could only be treated as non synchronous background if the source of the sound - the piano keys - were kept out of shot to avoid sync problems.

An observant sound recordist will always make a note during shooting of any other sound sources which may be useful later during the edit, and try and record them whilst on location. Door slams, cars driving off, kitchen clatter etc. are likely to be more effective if recorded separately on the location. Although some of them may be picked up on the speech recordings, they may need reinforcing. A library sound effects recording should only be used as a last resort.

Non synchronous sounds can often be recorded away from the pressures of the main shooting time - so if the video camera/recorder isn't available then make sure you have a portable DAT or cassette recorder to hand.

Non Sync Sound. Key Points

- Dialogue in long shots may be easier to record separately
- Separating sounds whilst recording gives more control in editing
- Record your own effects if possible
- Carry a portable tape recorder
- Library discs can provide effects, atmos, and music

RECORDING LEVELS AND DISTORTION

Probably the most common form of audio distortion is caused by poor recording levels. Too low and your recorded sound will be buried under the tape hiss. Too high and the louder portions of sound will overload and appear to break-up. Make sure you keep a constant watch on the level meters during recording. In drama, problems should have been identified during rehearsal but even so you may need to make slight adjustments during the take.

In an interview, watch out when recording begins, that the subject doesn't suddenly start talking more loudly than he or she did during your initial 'test for level'.

Some audio level meters use flashing LEDs and some use more conventional moving needles. To add to the confusion, some meters are calibrated on the VU (Volume Unit) scale and some on the PPM (Peak Programme Meter) scale. The PPM is generally regarded as more accurate because it gives a peak level reading rather than the average level reading displayed by the VU meter, but it's also more expensive. The video shows the equivalence of a PPM reading at level 4 to a VU reading of level 0, but because the meters operate on very different principles and also vary a lot in quality, this should only be used as a rough guide. If you're working with both sets of meters, (e.g. PPM on the mixer and VU meters on the camcorder) you'll need to experiment to find the true equivalent settings.

Tape characteristics will be different depending on whether you're recording onto a digital or an analogue format. Broadly speaking, all analogue tapes will have a certain amount of tape hiss so it's essential to keep the recording level high enough to overcome this. Not too high though or the tape will go into overload distortion. The useful area between the limits is called the dynamic range. (On analogue tape the dynamic range is nowhere near as wide as the limits of human hearing.)

Digital tape has a much wider dynamic range (although still not as wide as the limits of human hearing) and levels can be set much higher before overload distortion sets in. Watch out when it does though, because it's very sudden and very unpleasant to hear. There should be no need to record at a high level because unlike analogue tape, digital tape suffers very little from low level hiss.

Overload distortion can sometimes occur when rumbling, or handling, or wind noise are prominent. You may not hear this on headphones but it will certainly make the meter needles flap wildly. If this seems a likely problem the solution is to switch in a bass-cut filter.

Try taking the headphones off and using your ears to make comparisons and to listen out for problems. Headphones sometimes have their own idiosyncrasies and can be misleading.

The most common difficulty encountered with recording levels is when there

are sudden unexpected loud moments in the recording. Most camcorders have a Limiter or an Automatic Gain Control switch which effectively dips the level during loud passages and then restores it afterwards. Be very cautious when using these devices though because you may become more aware of the background level going up and down, particularly if you have set the average level a little bit too high. It's usually better if you can manage without them.

Other forms of distortion can occur for a variety of reasons, some of which are more controllable than others. Here are a few to listen out for:

Cable noise:
Long lengths of trailing cable can pick up noise as they are dragged or handled.

Radio interference:
Audio cables act like radio antennae but the metal screening around the signal wires should prevent radio signals from breaking through. However, if the cable is long, or it's cheap, or there is a weak connection, or you are working near a radio transmitter, you may find yourself tuned into the latest cricket results.

Mains hum:
There are a number of common causes for this:

- A damaged cable where there is a break in the connection to the metal screening.
- Lighting dimmers will often cause the audio to buzz and may need to be suppressed or turned off.
- A number of different pieces of earthed equipment connected to the same mains supply may create an 'earth loop'. You'll need some electrical assistance to cure this, since removing earth connections is potentially hazardous. As a last resort it may be possible to reduce mains hum in post production by playing the sound through a 'notch'filter set to remove only those sounds occurring close to the 50 hertz frequency.

Key Points. Distortion

- Overload distortion is caused by:
  - under modulation
  - over modulation
- Digital recordings don't have noticeable tape hiss
- Keep a continuous check on meter levels
- Use automatic gain control devices cautiously

Project

You will need:
A tape recorder or camcorder (with level meters)
A microphone
Good playback facilities

Make a list of sounds that you can isolate and record easily. Try a few diffi-

cult ones too like dropping a drawing pin or hammering a metal sheet. As well as making the best recording you can, try and introduce some distortion as well - poor mic position for example, or over modulation and under modulation. If your recording system has an Automatic Gain Control switch or a Limiter switch, turn the levels up full and see what effect they have. Keep a log of your recordings and comment on the results.

EDITING

The first stage of editing is called ‘First Assembly’. Shots are roughly cut together into the right order and approximate length. During the second stage - ‘Rough Cut’, most of the critical decisions about shot placement and length are made. It's during this stage that you will need to start paying attention to the sound. In the drama example given, an intruder enters a room, hears something and quickly leaves. In the rough cut, the picture cuts are about right but the synchronous sound shot with the picture has lots of extraneous noise and bits of comments from the director and the cameraman. These need replacing with ‘ambience’. We also need to know what catches his attention to make him leave. The sound of a barking dog was added.

In the case of a spoken interview accompanied by pictures, you may decide to cut the interview sound first to get the speech content right and then the use the pictures as an accompaniment. The problem with this approach is that you can end up with a ‘wall to wall’voice track and a picture sequence which is secondary and uneven.

Every situation will be different but the speech and the pictures must be considered equally in order to integrate properly. Sometimes the voice will lead the picture and sometimes the other way round. Sometimes the pictures only need their own synchronous sound. Sometimes the voice needs no picture other than the speaker ‘s face. An editor needs a good understanding of the content as well as having the craft skills to manipulate the material.

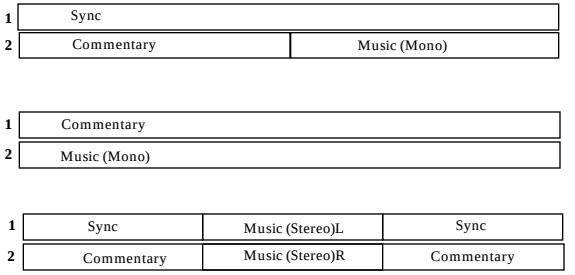


Fig (3). Some possible arrangements of two audio tracks

Most basic editing systems will allow independent cutting of picture and two tracks of sound. In some cases, this may be all you will need, but more often than not, you will find two tracks are very limiting. Fig (3) shows some examples of how you could plan two tracks of sound:

You can extend the number of apparent tracks by copying your master video tape (ie. making a Dub Master). It's then possible to build up the number of audio tracks by 'bouncing' them between the audio tracks on the two master video tapes. Fig (4) shows a possible sequence for this.

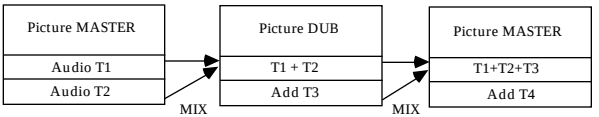
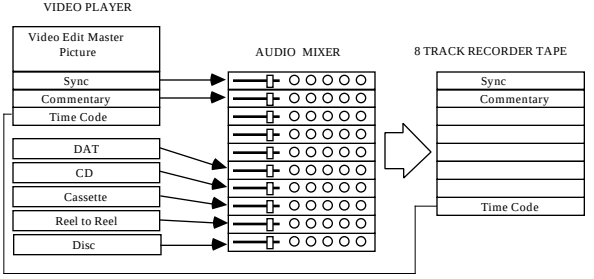


Fig (4). Bouncing audio tracks to build up layers of audio.

You'll need an audio mixer so that you can control the relative balance during each recording pass, and it's only really feasible with mono sound sources. In the example shown, four tracks are built up but despite the fact that the video picture is the original master copy, the track 1 audio material has been recorded at least three times and so will have deteriorated in quality.

A multitrack audio recorder will open up many more possibilities for layering sound. If the audio recorder is say, an 8-track analogue machine like the one shown in the video, then it will need to be electronically locked or 'slaved'to the video player to prevent the machines running at different speeds. To enable this both video and audio tapes need to have matching time-code signals recorded onto them. Time-code is a stream of electronic numbers recorded along the length of the tape such that each number identifies a particular frame (eg. 04.16.10.06 identifies a picture frame at 04 hours, 16 minutes, 10 seconds, and 06 frames). A synchroniser will be necessary to generate a time-code signal for the audio recorder which matches the time-code on the video tape. (Not all video formats operate with standard time-code (SMPTE) so you'll need to check that your video master is on a compatible format).



In the case of the audio tape, the time code recording will require a dedicated track of its own. Fig (5) shows an example layout.
Fig (5). Example of track laying.
The original audio tracks are copied to a multitrack tape and additional tracks are built up alongside. A spare track is reserved for time-code.

Sync sound, commentary, atmos and sound effects can be given separate tracks of their own. Stereo music will take up two tracks. A mix between one piece of stereo music and another will take up four tracks and so on.

As usual, planning helps and it's a good idea to work out beforehand how the tracks will be filled by drawing up a dubbing sheet like the one shown in Fig (6).

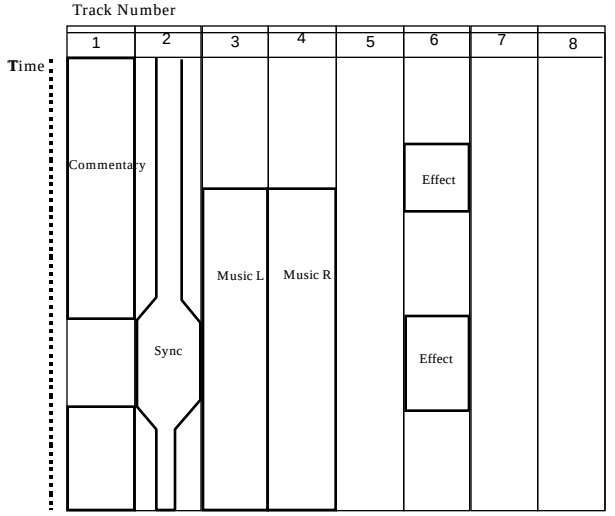


Fig (6). Dubbing sheet layout

Laying sounds onto adjacent tracks means that it's possible to provide short sound overlaps at 'cut' points in the picture. A smooth transition on the sound can make a visual edit less noticeable. This overlapping technique can be used to smooth out small atmos. changes within a scene, for example between different mic positions.

Key Points. Editing
- Edit the sync sound first
- Use sound overlaps to help the flow
- Use a dubbing sheet to plan extra tracks
- Layoff the sync sound to a multi track recorder
- Use the multi track to build up extra sounds

Projects
You will need:
camcorder and microphone
Video edit suite (2 track audio)
(Video edit suite (multitrack))

Visualise and record the following sequence:

Mary: Is that you John?
John: Yes, I'm back (enters). Oh have I just missed the news?
Mary: It's just finishing actually (switches off TV as the telephone rings). I'll get it. Hello. ... Yes, he's here now.
John: Hello ... Yes. (sound of crash outside) What on earth was that! (John drops the phone and they both rush over to the window.)

1) Obtain all the necessary sounds and try to video-edit this using just two audio tracks and without using 'bounce' techniques. Comment on the difficulties you encounter in editing the sound.

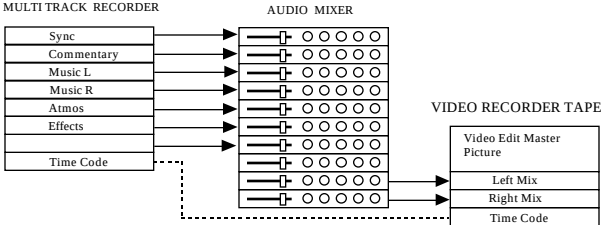
2) Draw up a dubbing sheet and record the soundtrack using the track bouncing technique described earlier. Comment on the differences between the two versions.

(If you have access to a synchronised multitrack facility, use this instead)

THE MIX

The process of arranging and placing sounds on tracks is called 'track-laying'. The sounds are placed in the right positions and recorded for the best ratio of signal to noise but their relative volumes, tonal qualities and the transitions between them have not yet been dealt with. They need mixing.

A mixdown to stereo means that each individual track recording will need to travel through a mixer channel where each sound can be treated for volume, tone and stereo position. Most mixer channels also have an 'aux send'control so that sounds can be 'sent'for extra treatments such as reverb, echo, compression etc. At the output stage of the mixer, all the sounds will be combined into a final stereo mix between two output channels (Mono will require only a single output channel). The mixed signal is then sent back to overwrite the original audio tracks on the video edit-master. Fig (7)
Fig (7). Mixdown to stereo.



The audio tracks are played back and balanced through a mixer. The stereo output is then recorded back onto the video edit master tape.

Tone correction or 'EQ' as it's called (short for equalisation), may only require simple adjustments of bass and treble. On the other hand, equalisation can be used in quite powerful ways. For example removing all but the mid to high frequencies will make a voice recording sound as if it is coming through a telephone receiver. A party atmosphere track can be made to become muffled as a door closes on the picture, by boosting the mid low frequencies and removing the treble.

Depending on the equipment you are using, the actual mixdown process may have to be done live so the fewer adjustments you have to make on the mixer, the easier this will be. Fortunately nowadays, mixers are often computer assisted and will be able to remember to make the changes for you as the recording proceeds. In the case of a totally digital multitrack recording environment, the whole post production sound process is much simpler. Track laying is done on a computer screen using cut and paste techniques, enabling sounds to be moved around and repositioned at any time. The software will also contain its own audio mixer and so volumes, tones and stereo pan settings can be held in the computer's memory and changed at any point in the programme.

Key Points. The Mix
use the mixer to:
• adjust relative volumes
• adjust tone
• position sounds within the stereo field

MUSIC AND SOUND EFFECTS

Adding music and sound effects may happen at quite a late stage in the programme but both will have a profound effect on the pictures so make sure you have allowed for them in the planning, and choose and use them with great care. Music in particular can provide a lot of information which might not be immediately evident in your pictures. For example: historical period, country of location, type of event.

Music can also be used in very subtle ways to convey emotional moods, danger, suspicion, joy, sadness and so on. Avoid using music just for the sake of it. Make sure it has a real and definable purpose.

There are a number of specialist libraries that will provide music for programme makers. These have preset copyright rates agreed through the Mechanical Copyright Protection Society (MCPS). Avoid using commercial recordings unless you are sure you can get hold of copyright clearance.

Sound effects can also be obtained from library discs but often it's better if you can record or construct your own. Simple spot effects like door slams,

cars starting up, ringing telephones etc. should have been recorded on location along with the ambient tracks, but other more exotic sounds like a super zap death ray laser gun or a chimp with a cold opening a bag of pistachio nuts may need some more ingenuity.

If you have got some spare time and access to an audio sampler or a tape recorder with reverse and various speed settings, you can begin to build up a library of your own sounds.

Key Points. Music and Sound Effects
• Music and sound effects can have a huge effect on your programme
• Choose them with care
• Experiment to make your own effects
• If you use library or commercial material, you must get copyright clearance

Projects
You will need:
Off-air video recorder
Video edit suite

Make ‘off air’ video recordings of a selection from the following:

A wildlife sequence
An advert (not using lip sync sound)
An animation (not using lip sync sound)
A TV title sequence

Choose suitable music and sound effects to rebuild the sound tracks either to support or to influence the meaning of the pictures.