( ((( UNIKOM ))))  )

UNION NICHT-KOMMERZORIENTIERTER LOKALRADIOS

# RAWIK
# Radio Aus- und Weiterbildung im Interkulturellen Kontext

**Erarbeitet von Fachpersonen von Radio LoRa, Radio RaBe, Radio X und der Radioschule klipp+klang**

## Technology





lora 97,5 MHz

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Radio X

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Im Projekt **RAWIK** wurden 2010 bis 2011 Kurskonzepte und begleitende Lehrmittel für die Radio Aus- und Weiterbildung erarbeitet. Die Lehrmittel stehen allen AusbilderInnen und SendungsmacherInnen der nicht kommerziell arbeitenden Radios zur Nutzung zur Verfügung.

RAWIK gewann 2011 den Anerkennungspreis der 6. Medien-Awards des Vereins Qualität im Journalismus.

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# Show production – from planning to archiving

## Planning and preparing a show[1]

A radio programme generally comprises several shows, each of which has a particular show format (e.g. magazine show, news, background show, music show, talk show etc.). The format and structure of the show are specified in the show's concept / description, as well as in the show clock. The amount of creative freedom within a show depends on the broadcaster's concept and the show's concept.

Various design elements feature during the course of a radio show. For instance, in a magazine show:
- Jingle (show's acoustic recognition feature)
- Presentation of the show (the presenter guides listeners through the show, announces items and presents the central themes)
- Hourly overview
- Music
- Teaser (for subsequent show elements)
- Trailer (brief preview of a show or item, generally with text, music and excerpts from the item)
- Item (report, interview, comment, etc.)
- Reports on sport, weather, traffic, news…
- Regular items (items which repeat from show to show, usually in a fixed place within the show, e.g. album of the week, quiz with listeners…)

### Show structure – with a magazine show as an example[2]

A magazine show generally begins with a greeting and something which sets the tone for the show. This can be a specially produced jingle or a piece of music which suits the mood. Also at the start, the presenter gives the audience an overview of the planned topics. They should make the start of the show as fascinating and appealing as possible, so as to arouse the audience's interest and to captivate them. They must plan the timing in advance very precisely, so that they can implement the programme within the predefined time frame and so that they can maintain high diversity of content. (An example show rundown sheet is attached at the end of this section).

[1] Based on klipp+klang (2008: 16).
[2] Based on Interaudio (2006: Planung und Gestaltung einer Magazinsendung).

**Checklist for the structure and dramatic composition of the show**

• Where do I position serious themes and where lighter themes?
• Which items are particularly interesting and topical? – These should be positioned strategically within the show.
• Are there fixed regular items with predefined broadcast times, e.g. news, tips or comments?
• What rhythm should the show have? What ratio between talk and music?
• When does the audience need concentration breaks and listening breaks?
• Between which items and themes can I make good transitions?

When arranging the timing, it is important to plan sufficient time buffers in order to accommodate unforeseen delays. Anyone presenting in multiple languages needs more time. Also, at least 3, but preferably 5 minutes of music should be scheduled for the end of a show, so as to enable the changeover to the next show's team in the studio.

**Show clock and show rundown sheet**[3]

The show clock, also referred to simply as the clock, displays all show content in an individual hour and where this content is placed. Shows of several hours in length require just as many show clocks as there are hours in the show. The show clock visualises the arrangement of the design elements, thus aiding balanced show design.

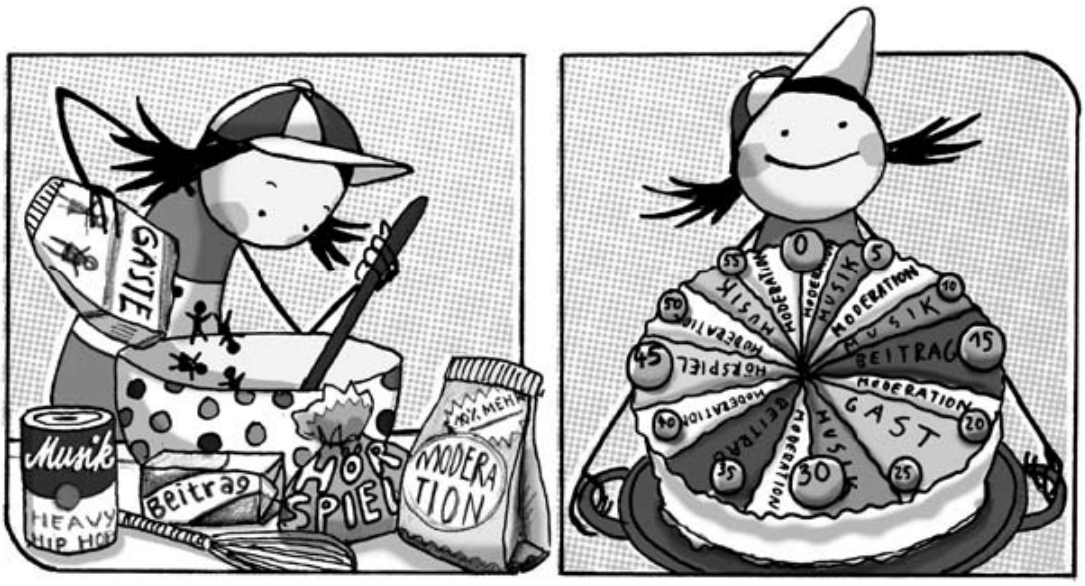



Illustration: Sandra Uhlitzsch (sandruschka), Interaudio 2006, Keine Angst vor Technik

On the basis of the show clock, a show rundown sheet is prepared. This lists all show content in chronological order and is the basis for the actual show design. Where are jingles placed? When is there talking over a musical backdrop? Who presents when in which language? And so on… This, in turn, is the basis for the presenter's script.

[3] Based on klipp+klang (2008: 25–27).

**Example of a show rundown sheet**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Name of show: **Politburo** | | | | | | | |
| Show date / time: **Sunday, 05/07/2009, 18:00–19:00** | | | | | | | |
| | | | | | | | |
| Presenter: **Nicole Meier** | | Music: **Nicole Meier** | | | | Technician: | **Detlev Müller** |
| **No.** | **Content** | **Artist / author** | **Sound carrier** | **Track no.** | **Time** | **Length** | **Remarks** |
| 1 | Politburo jingle | Politburo | PC | 1 | 18:00:00 | 00:00:43 | |
| 2 | Greeting / introduction | Presenter | Live | | 18:00:43 | 00:01:00 | |
| 3 | Cecilia Ann | Pixies | CD | 1a | 18:01:43 | 00:02:06 | Caution, stops suddenly! |
| 4 | Union story | Nicole Meier | Live | | 18:03:49 | 00:04:00 | |
| 5 | Workers' united front song | Tom Schneider | CD | 5 | 18:07:49 | 00:02:38 | Out after 2:38! |
| 6 | Intro: Founding of Verdi regional office | Presenter | Live | | 18:10:27 | 00:00:30 | |
| 7 | Founding of Verdi regional office | Detlev Müller | PC | 5 | 18:10:57 | 00:05:10 | |
| 8 | Get up, stand up | Bob Marley | PC | 3 | 18:16:07 | 00:03:12 | |
| 9 | Intro: Globalisation | Presenter | Live | | 18:19:19 | 00:00:30 | |
| 10 | Globalisation item | Anja Graf | PC | ? | 18:19:49 | 00:05:17 | |
| 11 | Get a move on! | Mr. Scruff | CD | 1 | 18:25:06 | 00:03:26 | (Fade out at 2:30) |
| 12 | Intro: Conti works council | Presenter | Live | | 18:28:32 | 00:01:00 | |
| 13 | Conti works council item | Anja Graf | MD | | 18:29:32 | 00:04:00 | |
| 14 | Intro: IGM youth camp | Presenter | Live | | 18:33:32 | 00:01:00 | |
| 15 | IGM youth camp item | Detlev Müller | MD | 22 | 18:34:32 | 00:03:43 | Raise level!!! |
| 16 | Susanne zur Freiheit | Fishmob | CD | 2 | 18:38:15 | 00:04:12 | |
| 17 | Intro: Future of IGM | Presenter | Live | | 18:42:27 | 00:00:30 | |
| 18 | Debate on future of IGM | Jo Baumann | MD | | 18:42:57 | 00:02:40 | |
| 19 | One by one | Chumbawamba | CD | 6 | 18:45:37 | 00:05:45 | Out earlier! |
| 20 | Intro: Köter interview | Presenter | Live | | 18:51:22 | 00:00:30 | |
| 21 | Köter item | Detlev Müller | PC | | 18:51:52 | 00:04:35 | |
| 22 | Closing remarks over 45 sec. ramp of Bachelorette | Björk | CD | 7a | 18:56:26 | 00:03:33 | |
| | | | | | 19:00:00 | | |

# Show production technology[4]


Illustration: Sandra Uhlitzsch (sandruschka), Interaudio 2006, Keine Angst vor Technik

### *The most important of all devices: the ear*

In radio, the key factor is how things sound. And for things to sound good, the equipment must be right. Here, the most important "device" is the human ear. It enables us to determine what sounds good: whether original sound (an original recording of an interview, noises etc.) is quieter or louder than the music, whether a little more bass would make the voice sound more friendly, or whether reverb would be a good effect. Also rhythmically, where the right place is to fade out the music, whether the rhythm of the music suits the tempo of the voice etc.
Only our hearing can reliably tell us whether the technical devices used are set correctly and are functional. Thus, listening carefully is essential in radio work. We can train our hearing and over time we develop a sense of what sounds good.

## Recording with the mobile recorder

Many show elements are pre-produced. For this purpose, we need recordings (original sound, noises, music or self-developed text elements) which we work on with audio editing software to prepare an appealing item. Pre-produced items are then incorporated into the live show. Naturally, it is also possible to pre-produce the whole show.

[4] Based on Interaudio (2006: Keine Angst vor Technik).

For a good recording, it is essential to know the microphone and recorder well and to be able to operate them faultlessly. The right recording volume must be tried out well ahead and must be constantly checked during the recording. If the recording volume is too low, noise arises when the recording is brought to the right volume, which usually means that the recording cannot be broadcast. If the recording volume is too high, the recording sounds distorted – it is "overdriven". The optimal recording level is between minus three and zero decibels. Anything over zero is distorted and thus unusable. However, when recording, we should not just rely on our eyes: if the volume level is correct, that still says nothing about the sound quality or possible disturbing noises. We only notice these if we wear headphones when recording. By the way, every room sounds different too. Headphones make us more aware of this as well.

An interview is only a good radio interview if the sound quality is right. Attention must be paid to this when recording. Not even the best computer program can turn a poor recording into a good one!

**Checklist for good recordings**

**Before the interview:**

- Check the gear: is everything there? (Microphone, cables, batteries / power adapter, headphones, enough room on the sound carrier / memory card).
- Practice using it once again (connecting microphone and headphones, handling the microphone, changing batteries).
- Make a test recording and listen to it: do the microphone and headphones work?
- Check the sound quality: how does the microphone sound? What is the optimal distance from the interviewee? Is much background noise picked up? Every microphone is different!
- Pay attention to background noise and disturbing sounds, e.g. humming computers or buzzing neon lights. Position yourself with your back to disturbing noises.


Illustration: Sandra Uhlitzsch (sandruschka), Interaudio 2006, Keine Angst vor Technik

**During the interview:**

- It is essential to wear headphones.
- It is essential to use a microphone wind shield. This is a sheath made of fabric or synthetic material, which dampens sibilant sounds or pop sounds (p, t, k, sh) and wind noise.
- Always bring the microphone as close as possible to the sound source. During the interview, it should be one hand's width away from the mouth of the person talking.
- Never hand over the microphone: in this way, cable noises can be avoided and the interviewer retains control of the situation.
- When moving the microphone between interviewer and interviewee, make sure that both voices are at about the same volume; otherwise adjust the distance between microphone and mouth.
- Do not make any unnecessary background noise (such as an approving "yes" or "uh-huh"). Hold the microphone in front of the interviewee's mouth until they have finished their answer.

## Microphones[5]

For a good recording, it is essential to have a good microphone. There are two types of microphones:

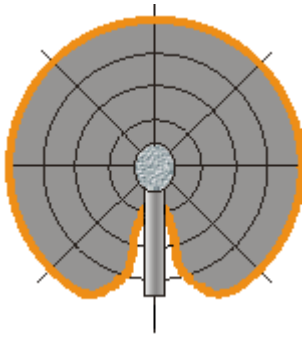
**Dynamic microphones**
In noisy situations (schoolyard, gymnasium, sports field, street noise, machinery noise), dynamic microphones are used, as they can cope well with high levels.

**Condenser microphones**
Condenser microphones need an energy source. This is provided by a battery inside the microphone (do not forget spare batteries). Condenser microphones are a popular choice for recording indoors. Studio microphones are also condenser microphones.

For recording voices, both dynamic and condenser microphones are suitable.

Microphones also have different **polar patterns**:
A microphone's polar pattern refers to the shape of the space around the microphone, from which sounds are best recorded. For radio, we primarily need omnidirectional and cardioid microphones. With an omnidirectional polar pattern, the microphone records sound from all directions. It is thus not particularly suitable for interviews etc. Microphones with a so-called cardioid polar pattern record sound from the front and sides. Microphones with cardioid or shotgun polar patterns are classed as directional microphones.

*Cardioid polar pattern*



*Omnidirectional polar pattern*

Illustrations: Movie-College Team, Munich.

Finally, we should also pay attention to whether it is a **mono or stereo microphone**. Mono microphones are good for recording voices. For recording radio plays, music, noises and ambient sound, stereo microphones should be used.

Usually, the radio station provides microphones. To acquire external microphones or digital recorders with built-in microphones, we turn to the technicians who work at our station.
Many of the mobile digital recorders used today have built-in stereo microphones, some of which offer good recording quality for voices and noises. These devices usually also have inputs for external microphones. Some devices can be switched to mono recording mode. Dictation devices with small, barely visible microphones should not be used at all, unless these devices provide usable results with external microphones. Recordings made with mobile telephones, or with MP3 players which have a recording function, are not suitable for radio either. It is essential to test every device before buying it! Criteria: recording formats, sound, user-friendliness and replaceable batteries.

[5] Based on Media Culture Online.

## Audio files

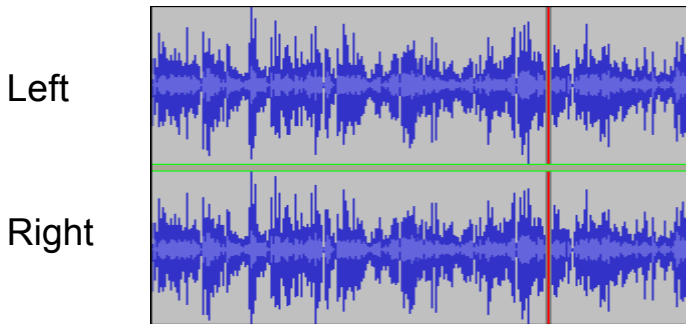
Raw audio material (WAV format) takes up a lot of memory (80 minutes in stereo require around 800 MB). For this reason, the format MP3, which is a compression format, is often used. However, if an audio file is too compressed, audible frequencies drop out. The level of compression is reflected by the bitrate of the MP3 file. The lower the bitrate, the greater the compression of the audio file. The bitrate is given in kilobits per second (kbit/s or kbps): 128 kbit/s, 192 kbit/s, 320 kbit/s etc. It is advisable to avoid going below a bitrate of 192 kbit/s. For complex editing work (e.g. when producing a radio play), use WAV format if possible. Upon buying a recorder, take note of the formats and recording qualities which it offers. For instance, some devices can only record with compression and do not offer WAV format.

Audio CDs cannot simply be copied onto a PC. They have to be "ripped". In computer jargon, "ripping" means copying music or films from a data source onto the hard drive of a PC. Most audio programs offer "ripping".

Occasionally, recorders and computer programs use their own formats (i.e. proprietary formats, such as WMA or AAC). It is important to clarify which formats can be edited and played back at your radio station.

# Digital editing

For the production of items, a wide range of audio editing software is available (also as freeware: Audacity). They differ in terms of their options, structure and design. What they all have in common are the basic elements needed for editing original sound and music: normalisation, cutting, assembly, mixing, compression and storage. Simple items with your own text elements and original sound can be realised with a simple editing program on a single track. A soon as background music, noises and jingles are used, two to three tracks are required. This allows overlaying of elements.




*Graphic depiction of a stereo audio file on a single track (envelope)*

Important: do not only work visually. Check every editing step (i.e. every cut, every transition etc.) with your ears!

### Audio editing workflow:

1) **Recording / importing and normalising**
   - Record (careful: do not overdrive!) or open audio file.
   - Normalise (adjust volume while observing the graphic display – recordings often sound loud enough through headphones).
   - Store and name (make backup copy).
2) **Cutting**
   - Cut by marking and deleting (usually scissors icon and delete key). For this purpose, the zoom tool is essential (usually magnifying glass icon).
   - The most recent step can be cancelled via "undo".
3) **Assembly**
   - Bring elements together, alternating between several tracks.
   - Adjust transitions.
   - Balance the volumes of individual elements.
   - Excerpts can also be moved or copied within an audio file or from one file to another by means of cut / copy and paste.
4) **Mixing and storage**
   Create a new audio file from the edited material and use compression if necessary. Save in the format prescribed by the broadcaster (usually WAV or MP3).

**Tips**[6]

- Even though hard drives are getting bigger all the time, audio files are relatively large, which means that if several people use the same computer for their radio productions, its memory is soon full. Ask where (and how much) data can be stored.
- Good preparation of the production on the PC saves a lot of work. In other words, before production begins, we should at least have a keyword plan or a script, i.e. a really precise idea of what the finished product should sound like. With the aid of this keyword plan, we can bring in the selected original sound recordings, speak the texts and finally mix in noises and music.
- When editing, it makes sense to use different tracks for arranging the material and, for example, to put original sound on one track and the presenter's voice on the next, as well as having separate tracks for atmospheric / background noises and music.

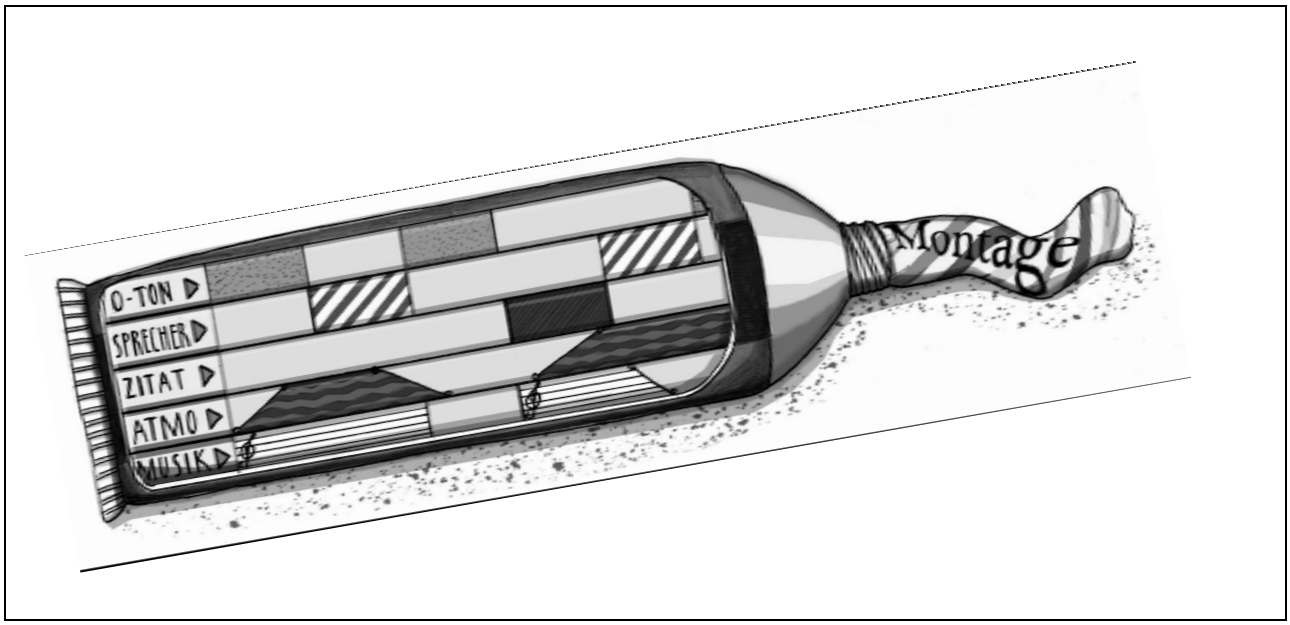



Illustration: Sandra Uhlitzsch (sandruschka), Interaudio 2006, Keine Angst vor Technik

- Only when the arrangement and structure are right, does the fine editing take place. This is when slips of the tongue, pauses and places where people say "erm…" are cut out. However, pauses are sometimes necessary in order to retain a person's natural rhythm of speech. Here, the ear and the sense of rhythm are the most important aids once again.
- Finally, it is very important to listen to the item again from start to finish, paying attention to changes in volume, rhythm disturbances, and logic gaps.

[6] Based on Interaudio (2006: Keine Angst vor Technik).

# Broadcasting: driving the show

### The broadcast studio[7]

Every radio station's broadcast studio looks different. The broadcaster's studio handbook is a valuable source of information!

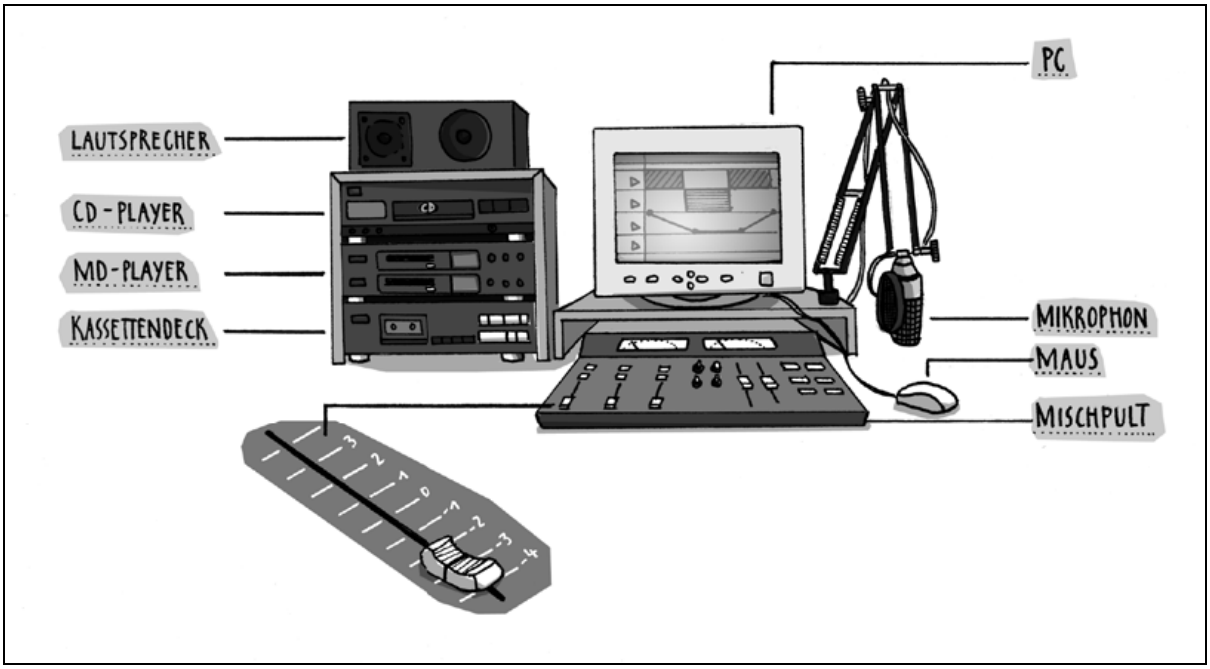



Illustration: Sandra Uhlitzsch (sandruschka), Interaudio 2006, Keine Angst vor Technik

The centrepiece of any broadcast studio is the mixing desk: all connected devices, such as CD players, PCs, MDs, record players and microphones are controlled via the mixing desk. This means that cables lead from all devices into the mixing desk and are allocated to faders or sliders. As the name suggests, the mixing desk mixes different audio signals together and feeds them into the broadcast channel as a signal. The person at the mixing desk decides which audio signals (e.g. music and microphone) are mixed together at what volume ratio, by "driving" the corresponding faders. What a show sounds like, and whether the audience enjoys listening to it, depends greatly on how the show is "driven", i.e. how the transitions between talk and music (or between two pieces of music) sound. With a little practice at the mixing desk, actively shaping the sound of a show can be a lot of fun.

Anyone driving a show for the first time is usually very nervous. A detailed show rundown sheet and / or a precise presenter's script can help to maintain an overview in a hectic live situation.

[7] Based on Interaudio (2006: Keine Angst vor Technik).

**Preparing and setting up before the show:**

- Observe the studio rules: no food or drink at the mixing desk!
- Are the presenter's script, show rundown sheet and all the show elements which it contains (jingles, pieces of music, musical backdrops, items) ready and properly set up?
- Listen in advance: check the start and end of each element, as well as the volume (especially for your own recordings, such as interviews and other spoken items).
- Practice presenting.
- Run through the entire sequence in your head.
- Are the settings on the mixing desk the same as usual?
- Conduct a microphone check, especially if several people are involved. If there are two presenters, arrange hand signals.

**Driving:**

- Open the faders quickly, especially for voices, because if they are opened hesitantly, the first words are not loud enough. The same applies to music, unless it is to be faded in deliberately. However, music is to be faded out slowly and by no means abruptly.
- Keep an eye on the level display (see also the notes on the relationship between the volumes of talk and music below).
- Overlay pieces of music which follow each other (fading out one source while fading in another = crossfading) or insert a jingle in between.
- Regularly check the timing on the basis of the show rundown sheet.
- While music or spoken recordings are playing, the time can be used for preparing the next part of the show. The next show elements are set up, the presenter practices what they have to say and the technical procedure of when which fader is to be opened or closed is gone through mentally.
- Listen in: before the microphone is switched on, don headphones! This is because the loudspeakers switch off when the microphone is on, so as to prevent feedback (whistling). Only with headphones on, can you control the volume of your own voice, e.g. over a musical backdrop.
- Pre-fader listening (PFL): every mixing desk enables pieces of music or items to be listened to in advance, without them actually being broadcast. This function must be activated individually for each channel. Pre-fader listening also allows presenters to coordinate better with the rhythm and content of the start or end of items and pieces of music, thus improving the flow of the show. After pre-fader listening, do not forget to switch off the PFL button.
- When tweaking levels for a show at the mixing desk, attention is to be paid to the relationship between voice and music. Faders for microphones generally have to be opened further than faders for music. A voice should be around 0.3 dB louder than the music (this is because music usually comprises several instruments / voices and thus has a fuller sound than a single voice).

# Archiving / podcasting

If the radio station does not automatically archive shows, some thought should be put into finding a way of doing this. Spoken items can also, for example, be put on the Internet as podcasts, enabling a wider audience to access them. The platform www.freie-radios.net also makes it possible to exchange items with other radio stations in the German-speaking world.

However, be careful with music! Anyone who distributes music must pay copyright fees. This also applies to podcasts!

# Sources

Interaudio (2006). Material for intercultural radio training. Planung und Gestaltung einer Magazinsendung. Antje Schwarzmeier and Ulrike Werner. Hessische Landesanstalt für privaten Rundfunk (LPR Hessen).

Interaudio (2006). Material for intercultural radio training. Keine Angst vor Technik. A. Schwarzmeier und U. Werner. Hessische Landesanstalt für privaten Rundfunk (LPR Hessen).

klipp+klang radio school (2008). Merkheft für die radiojournalistische Grundausbildung.

Media Culture Online. Mikrofone. Ingrid Bounin. http://www.mediaculture-online.de/Mikrofone.51.0.html (10 August 2010)