

The functions of sound

When creating a game soundscape, or a film soundscape for that matter, there are functions that need to be taken into consideration.

One of the key functions of audio within a game, as opposed to film, where the sound is linear and used to support the story / plot of the film. Game sound also needs to be informative and supportive of the players actions, unless of course you have a completely aesthetic angle on this topic and decide not to have any informative, supportive, responsive or any other type of sound, then go ahead, that's your own choice.

I consider games, at some points, to be like movies, but with an elastic band to all the sounds, because you don't know the timecode of the events, and if you do then it's not really creating the interactive audio, which is what I think the focus should be on. For now at least.

Sound should support the environment of your scene, it should support immersion of the game and finally and of course the diegesis of the game world and the players actions. As for music, the music can be given the same names, as sounds, in terms of analysis – environmental, how the music supports the players perception of the game world.

Immersion, the music supports the players engagement in the game world, cognitive and mythical.
Diegesis, the music supports the narrative / plot of the game.

It's really hard to find material on these subjects, which is my first reason for writing this book, and basically all there is to find is what's written by all the film audio theorists, like Michael Chion, Bordwell & Thompson, Munday, Phillip Tagg etc. All of them briefly touching the subject of audio in other mediums than film, but then again, not really.

Your game may have

Events:

System events

Game events

Events that all need an indicator of their existence, gun shots, footsteps, starting, pausing the game and so on.

The use of diegetic vs. Non-diegetic sounds, to understand the difference between an informative sound from the game system vs. A sound signaling that your gun was just fired, and it's a powerful gun and not a small one. Also named responsive sounds, feedback sounds and more.

These are the informative parts of the soundscape, whenever you score points, start the game etc. Signal audio and responsive audio. The names basically speak for themselves, but signals are information carriers of events happening within in the system – and responsive audio on game events or player actions, are feedback from the game to the player about that the action just performed was received and performed either right or wrong. Confirming, disconfirming, questioning since some actions require more actions to be performed afterwards, and so on. Warnings, Notice etc.

Another term of trans-diegetic is also out there, as meaning sounds in the game, be it diegetic or non-

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diegetic, which connect the game universe with the players universe. This term is basically a description of anything which increases immersion between player and the game universe, because of the sound alone.

Time:

Historical period of the visuals and / or story line.

Time of day

A World war II game, would probably benefit from a certain aesthetic touch on the sounds that indicate that this is 1944 and not 2050. as would the futuristic space adventure from 2050.

Time of day, is a classic indicator of what is going on.

Bird song may indicate anything from a beautiful morning to the horrific truth about the killings having taken place over night. Insects may tell you of dusk is coming in the desert, but also indicate that time has passed and the carcass on the floor has started decomposing.

As back in the microphones and recording chapters, where aesthetics of recordings is mentioned, the time of the historical period could benefit greatly from this. If you are aiming at sounding like microphones and recordings did back then at least.

But having something sounding old, looking from the ecologist perspective, would be knowing what back then actually sounded like, which basically can't be re-created, but let's trash the ecologist theory for a second and try to come up with what would need to be done. Not just on World War II, but when looking at imagery from a certain period of time, listening to music from the same period, the style of people, everything from the period of time, an idea should already pop into your head – and this is the idea you need to re-create, because already at this point, you shouldn't be far away from what other people may, soundscape wise, connect with the period you are re-creating. Fantasy games are a bit of a challenge though – if you rely completely on this theory and method.

On time:

Michael Chion came up with some brilliant terms on film sound and time, which can be transferred straight to game audio. His term synchresis, as a mix of synchronism and synthesis, the mental connection between audio and image, over time.

Space:

Indoor vs. Outdoor.

Size

Location

Distance

Indoors, you would usually have reverberation (unless you are in an anechoic chamber – where you theoretically have none, but in practice would have very little still).

Outdoors, have different roll-off when it comes to frequencies over distance.

The size of the room, (the size of the outdoors perhaps? ;)

If a room is small it would have more or faster coming early reflections in the reverberation, if a room

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is big the reverberation becomes longer and the early reflections might be more blurry than in the smaller room.

Location, is the sound to your right or left? In front or behind you. Or even above or below you? A study into binaural sounds would do good here.

Distance. Over distance sound changes, usually only very close up sounds have the highest of frequencies, indicating that something is close. Where the human ear is trained from instinct to react on such as danger and very close and imminent danger.

Further away object, have a distinct roll-off in high frequencies, telling your ears that they are further away, taking these factors into consideration makes creation of a 3D soundscape much easier.

With the use of real-time 3D audio now and almost real-time convolution reverbs in games and the ability to code very specifically when and where such effects should occur, one should make a clear aesthetic decision on how to use these effects, not at all, all the time, or just where you as a sound designer or audio director find it useful.

Position:

- in 3D field.*
- Proximity.*
- Movement.*

Just as with distance to objects, and the binaural effect on sounds because of their location in the room, the thoughts on whether your image or audio soundscape perspective is 3D or 2D should be taken into consideration.

Proximity, the proximity effect, is what will happen if something is close and up right in front of you. The proximity effect of a microphone, having it close to your mouth vs. Having it further away, changes the sound completely, and a sound recorded very closely will take great effect of this, and will almost be impossible to make sound as if far away. Useful to note when dubbing dialogue as well.

Movement, is the sound moving? Is it taking effect because of its speed in the sense of doppler effect – the effect which happens when cars with open windows and loud music drives by, or fire trucks driving by, sounding like the sirens change pitch whenever they are getting closer and further away.

Objects:

- Size.*
- Material.*
- Animate or inanimate.*

What is the size of the object? Is it heavy or light?. And what is it made of.

A heavy material gun, wrapped in soft plastic sounds different than a light weight gun with no wrapping falling to the floor or when being picked up.

Is the object animated? Is it actually alive or just a cold dead object like the gun.?

*Communication:
with other players.*

Does intercom or team speak interfere with your soundscape of the game or have you made sure that the soundscape is compressed whenever the other players are speaking over the team speak intercom.?