Sound Design

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Sound Design

Video game sound design is the art of creating and adding audio elements to a video game.

Sound functions:
- Player feedback
- Indicate object locations
- Indicate movement
- Indicate mood and feeling
- Define character
- Create the sense of realism and uniqueness

https://www.gamedesigning.org/learn/video-game-sound/
Sound Design

Source: https://youtu.be/KcorlwJscFA

Starts 1:05
Families

1. **Music** (MX) - any verbal speech in the game.
2. **Dialogue** (DX) - any verbal speech in the game.
3. **Sound Effects** (SFX) - any sound from real-life objects.
4. **Foley** (FOL) - any sound effect that the player makes.
5. **Background** (BG) - noise from the environment.
Exercise 1 - Badlands

Imagine what you should hear: https://youtu.be/BMt_vsgk4nY
Exercise 1 - Badlands

What you should hear:

- DX - some noise from the creature
- MX - slow mystical music, dark and subdued
- FOL - flapping of the creature
- FOL - enlarging/shrinking sounds
- FOL - creature knocking into metal pipes / branches
- FOL - squish of creature “dying”
- SFX - sound of whooshing fans / gears
- BG - jungle sounds (bugs, leaves, wind)
Determine whether something needs SFX

Try to answer these questions:

- Does it move?
- Does it draw attention to itself?
- Does it tell the player something they cannot see?
- Could it set a mood?
Thematic expectations

Expectations for different genres:

● **Action-Adventure games**: complex big music, a lot of SFX and DX
● **Mobile games**: big music, simple SFX, some DX
● **8-bit games**: simple music, simple SFX, no DX

You don’t have to follow these conventions.
Exercise 2 - Journey

Imagine what you should hear: https://youtu.be/bkL94nKSd2M

Start from 1:15
Exercise 2 - Journey

What you should hear:

- DX - breathing, grunts
- MX - some kind of epic music (orchestral), slow and steady
- FOL - sounds of flapping clothing
- FOL - player flying/gliding
- FOL - collection of items
- SFX - flying kite fluttering
- SFX - water rising
- SFX - glittering walls
- BG - sandy wind
- SFX - hall echoes?
Background sound design

Source: https://youtu.be/Khccjb47pfY
How to make a sound effect?

Best sounds are combining realistic with the fictional:

- What is the object made of?
- Are there expectations on how it should sound?
- What kind of mood should the sound evoke?

Try to combine multiple sfx into a new single sound.

Source: https://youtu.be/_2bEl6LiGfM
Source: https://youtu.be/vZwUjoU0B34
Sound implementation in Unity

Three objects can be added to the game:

- Audio Listener (Camera’s ear)
- Audio Source (Speaker)
- Reverb Zone (add locational effects)
Implementation consideration

1. Repetition / Variation
2. Priority (Mixing Levels)
3. Trigger Areas
4. 2D vs 3D sound
5. 3D sound settings
6. Platform and device
Examples of some bad implementations

Ride to Hell: Retribution

Source: https://youtu.be/gt6MDmU44dw

Stalin vs. Martians

Source: https://youtu.be/UGaU2TFmFJU
Sound player

- Create your own sound pool
- Modify audio source parameters

Global audio manager (one possible approach)
Randomize sound

- Find sound variations for frequent activities.
- Randomize pitch if you only have one sound.

![Scriptable object for randomizing sounds.](https://drive.google.com/open?id=1TvZACHsgY1ogj7cbzn8qih3kE4x3ixgS)
Mono vs Stereo

**Mono** - recorded with one microphone
- DX, FOL, SFX should be mono files.

**Stereo** - recorded with two microphones
- MX and BGs should be stereo files.
Modifying sound in Unity

Audio Reverb Zone

Audio Mixer

https://drive.google.com/file/d/1yfHk8M6aY9jah-C9i-qhs0xVAm3D2m5v/view?usp=sharing
Sound mixing in overwatch

Some design considerations: https://youtu.be/R_zqpdwBr5w

Start: 2:50

Developers talk: https://www.youtube.com/watch?v=60P0hzTTJ4Q
Rewarding and punishing sounds

Source: https://youtu.be/wHOyLvVQJa0

Start: 3:30
Music design
Free music

Negative:

● Not unique
● Not personal
● Not as good as paid music
● Used in many games

Positive:

● Free
● No strings attached
● More freedom to choose
● Less work for the developer

Finding a composer

1. Post your devlog: https://forums.tigsource.com/
2. Talk to the composers
3. Let them make a demo
4. Make sure:
   ○ You really like their music
   ○ They like your game
5. Ask multiple composers before deciding
Where to find sound effects?

http://www.mediacollege.com/downloads/sound-effects/
http://www.flashkit.com/soundfx/
http://www.audiomicro.com/
https://freesound.org/
http://freemusicarchive.org/
Record them yourselves with your phone!

https://www.youtube.com/watch?v=55CJ8kEeGwY
How to record your own sound effects?

Source: https://youtu.be/U_tqB4IZvMk

Recreating Game Sounds: https://youtu.be/55CJ8kEeGwY
How to make sounds

Source: https://youtu.be/aucpH8LYvnE
Layering

Source: https://youtu.be/0biAqn2ct0A
Exercise 3 - Shadow of the Colossus

Imagine what you should hear: https://youtu.be/IzRJTTSxfpQ
Exercise 3 - Shadow of the Colossus

What you should hear:

- DX - player talking to the horse, breathing, grunts
- MX - some kind of epic music (orchestral), slow and steady
- SFX - all the horse sounds (breathing, footsteps on stone/grass/dirt)
- SFX - sound of colossus
- SFX - sound of sword bow being pull / tension on the string
- SFX - sound of rocks falling
- FOL - footsteps of player on stones/dirt
- FOL - rattle of cloth
- BG - light wind in the plains
Lecture task

Make a layered sound effect for your game.

- Find suitable source sounds (e.g. https://freesound.org/)
- Layer at least 2 sound effects together.
- Optional: you can also add different Effects to modify the source sounds.

Submit an audio file (ogg).
Example (player death audio in Blastronaut game):
https://drive.google.com/file/d/1zrjPE4JtaOpcFYkRsc7pezel5xocukd0/view?usp=sharing

Use Audacity for sound editing: http://www.audacityteam.org/