

Immerse-Impact-Inform

A Three-Way VR Post Mortem

VR Regatta: Vive, Oculus, GearVR

Outbreak Origins: Location Based multiplayer VR Experience

Military Training Simulator: Proprietary hardware

VR is not a single “thing”

VR audio must respond to the specific needs of the project

VR Regatta: **Immerse**

A relaxing, atmospheric experience. The overall environment and the interplay between wind and water was key

Outbreak Origins: **Impact**

A short, high-energy experience specifically aimed at “non gamers”

Military Training Simulator: **Inform**

A training simulator designed to improve performance and save lives

VR Regatta

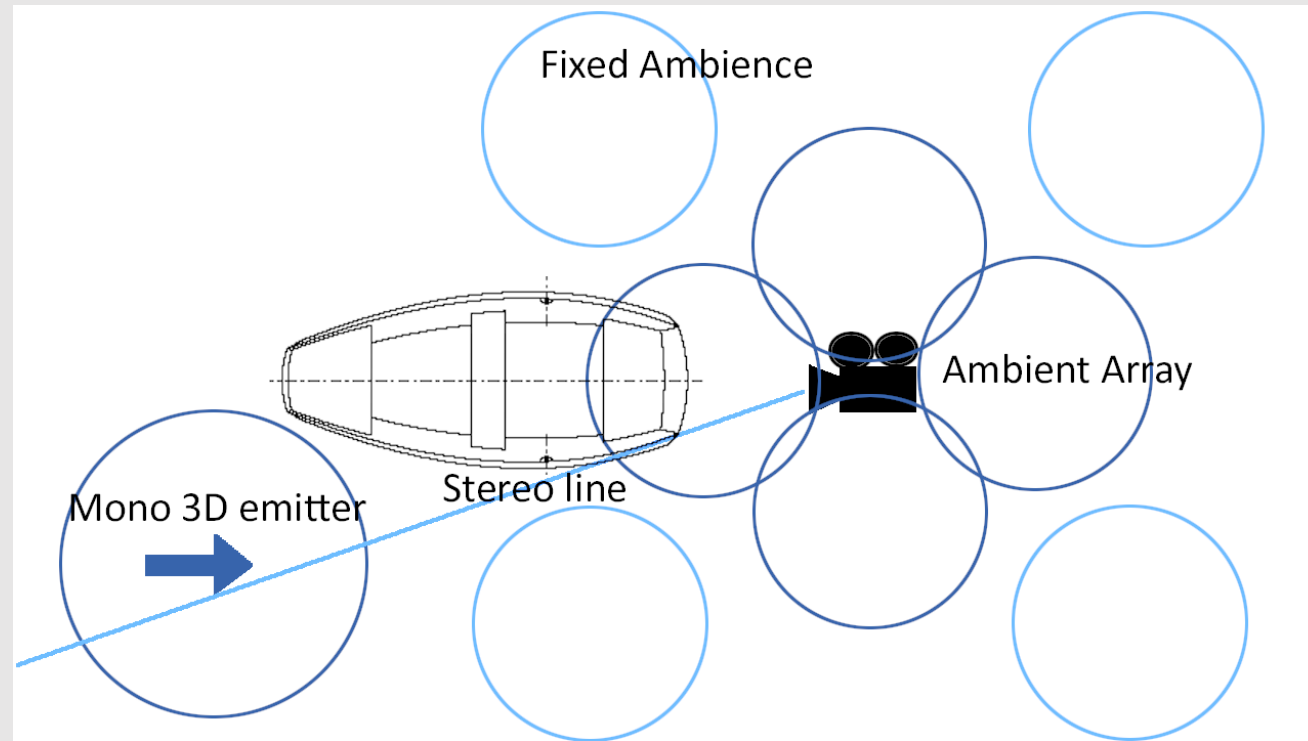
Fixed positions: Limited specific locations user could inhabit
This allows for a curated experience in each location

Limited scope: Always on a boat, in the water
Much easier to polish one environment to a high level

Resources: Small scope allowed for more resources for audio
This allowed for 24 channels to be usable for wind sounds

VR Regatta

HRTF is only one part of spatial audio



Environmental wind consisted of

- 5 unique wind emitters attached to the camera but locked to world orientation
- A mono directional wind emitter positioned in 3D space
- A stereo wind emitter that only triggered within 10 degrees of directional azimuth
- Fixed ambient wind emitters around the user

Each wind emitter had multiple sound sources depending on wind intensity

VR Regatta

Environmental water consisted of

- 4 emitters front, left, right, rear of boat for “lapping” water
 - Front emitter for bow wake
 - Front emitter for bow splash
 - Rear emitter for stern wake
- Side Emitters for port and starboard wake

Each water emitter had multiple sound sources depending on boat speed

Each water emitter had carefully turned attenuation.

- Side emitters would increase in **resolution** if user leaned down close to water
- Bow Splash would increase in **resolution** when user was at front of boat
- All emitters would transition through **intensity** levels matched to speed

VR Regatta

The “narrative” of VR Regatta is the audience’s experience of being in a boat on the water

The audio supports that narrative by surrounding the audience in the sonic elements that create a convincing sound environment

The dynamic nature of the wind and water sounds are less about the mechanics of racing a boat and more about the interplay between the audience and their environment

By immersing the audience in a virtual world they can believe in, all other elements of the experience become more convincing.

This is why audio for VR is so critically important

Outbreak Origins

True Freedom of Movement

Audience wears backpack PCs, headsets and carry “gun” controllers

Very Linear Experience, Room by Room

Progress in a single direction along a defined path

Hugely immersive Experience

The format itself is incredibly immersive, allowing audio to focus on IMPACT

Broad audience

Aimed at “lowest common denominator” so needs to be accessible

Outbreak Origins

Shared Experience

Users will draw each other's attention to certain elements (this can be good and bad)

Unique Environments

Each space had its own reverb, often exaggerated

Easy transition points

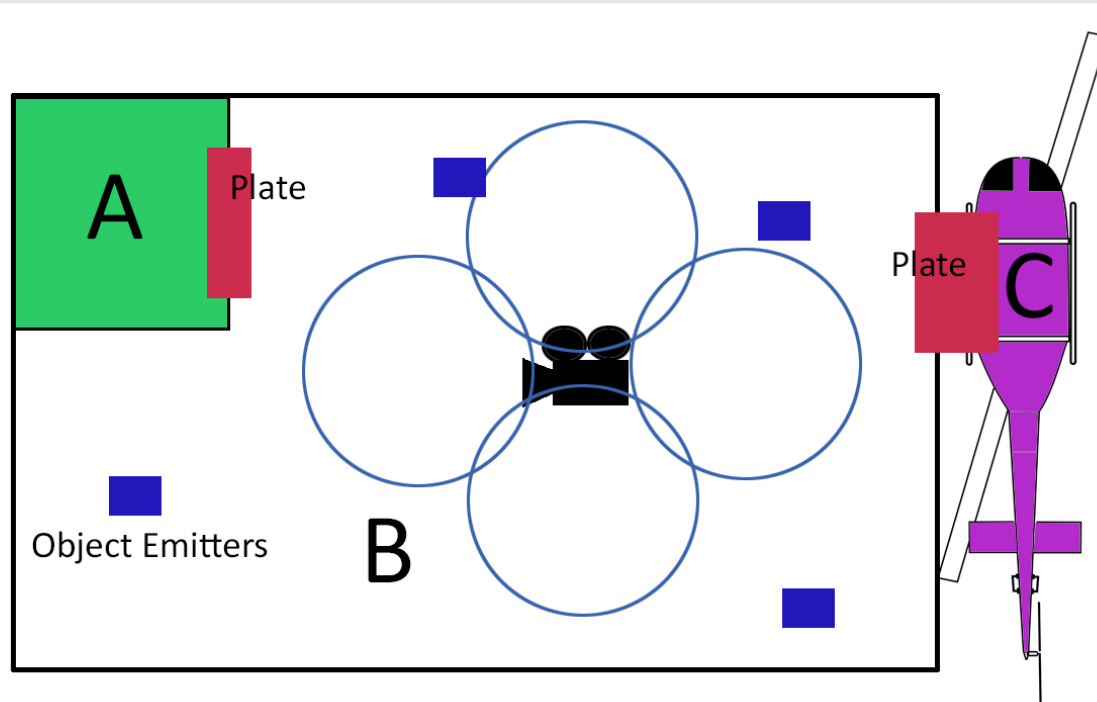
Movement from one environment to the next was fixed and set

Zombies

Familiar "narrative" allowed us to use the audiences expectations to support situation

Outbreak Origins

Trigger lines or “pressure plates”
*Major environmental changes we just lines
in the sand*



Impactful Experience

The act of stepping from a rooftop to a hovering helicopter is distracting

Pickups were always the most exciting
*Dialling impact up to 11 for the rare and
occasional upgrades*

Outbreak Origins Specifics

Weapons were all dry sounds, environmental reverb added the tails
The exception to this was outside where a 3D positioned tail added a huge impact

Subtle Environmental details had a huge impact.
Users specifically commented on unique specific environmental sounds like a sparking cable, or creaking ladder as really adding to the overall impact

General concept

Understand that your audience is likely curious, give them things to investigate, create things that add life to the environment, audio “rewards” for investigation.

The player who takes the time to walk to an unremarkable corner of a room and discovers a gurgling water pipe that only they can hear is going to appreciate the effort you went to.

Military Simulator

Very specific audience and purpose

Limited scope was helpful, but very high level expectations was daunting

“Serious” purpose client

Often did not understand how game development worked

Believed they knew what they needed

Client often missed opportunities for improvements to application because of predetermined expectations

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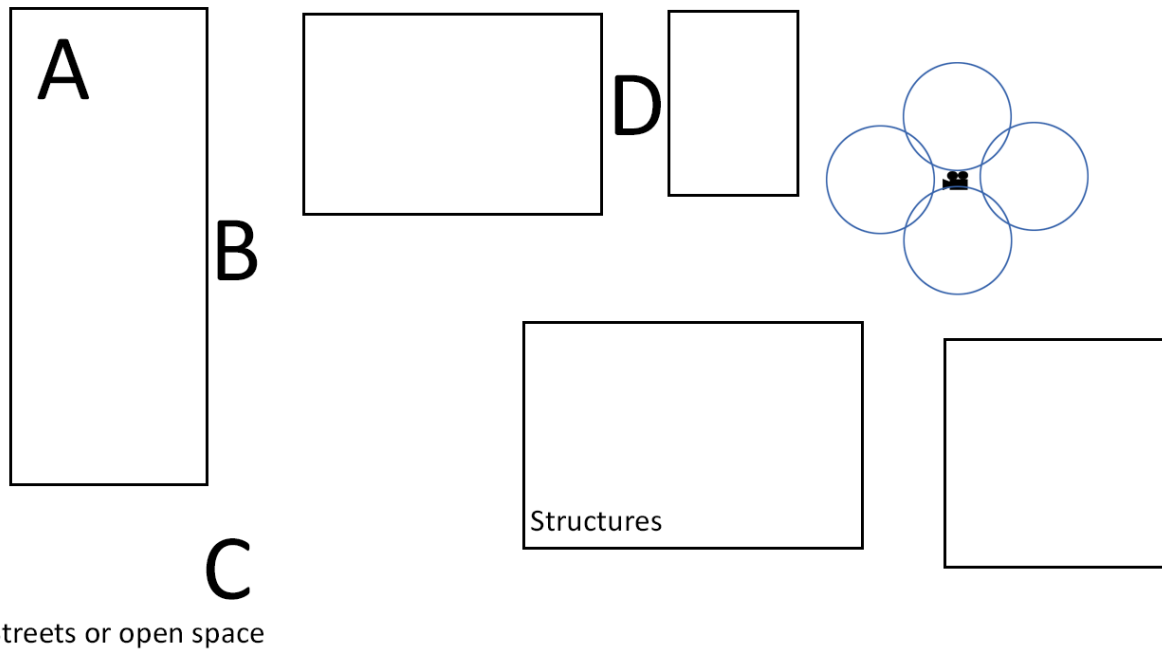
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Military Simulator

Surprising lack of understanding of what they needed

I was told they didn't care what the enemy guns sounded like



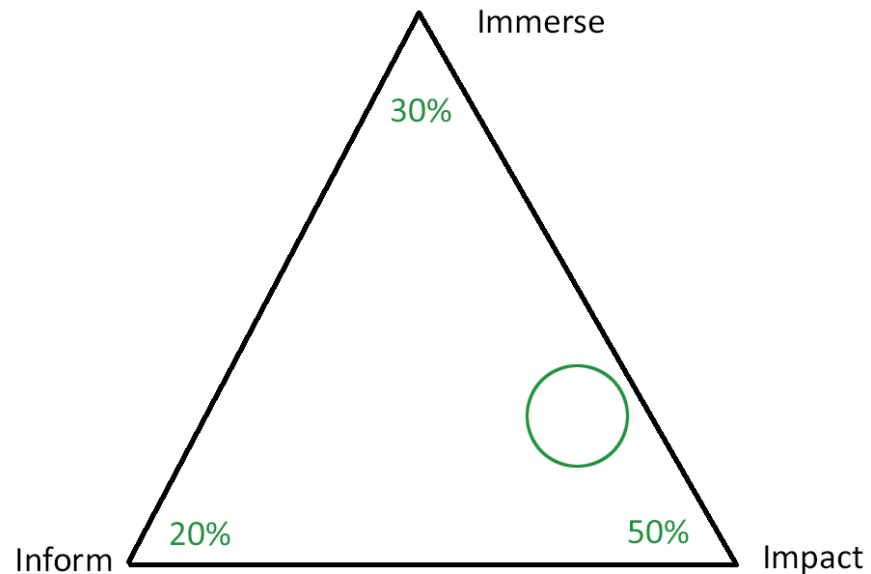
Missed opportunity for environmental warnings

Changes in sound behaviour of fauna can be invaluable

Overall "low value" of audio

Placed a low priority on sound

Conclusions



You will always have all 3 elements

The weighting will change per the needs of the project

VR Regatta: Immerse-Inform-Impact

Outbreak Origins: Impact-Immerse-Inform

Mil-Sim: Inform-Immerse-Impact

Conclusions

It is important to meet the needs of a project
but

The project will often define what is possible/feasible

It can be tempting to add a cool thing because it is cool
but

Does it really add value to that specific project

VR requires a new “language” to communicate with our audience

Evaluate the importance of the elements of Immerse, Impact, Inform and tailor your
audio to suit