Swash: A Case Study

liminal

Frances Crow, David Prior

University of Plymouth, Dartington College of Arts

liminal@liminal.org.uk

www.liminal.org.uk

Abstract

This paper discusses the implications and issues that arise in carrying out a sound installation for a public art project in a commercial visitor attraction. It covers issues of visitor expectation and what role a sound installation should and can play in this context. By concentrating on the space in-between art and function we explore the real and virtual spaces that can be created through the use of technology in juxtaposition with the physical site for an installation. This paper places these issues within the context of a case study of '*Swash*' a 24-channel permanent sound installation commissioned by Paignton Zoo for *Living Coasts* their new coastal habitat's visitor attraction.

1. Introduction

1.1 liminal

The term liminal refers to the state of consciousness between wakefulness and sleep. This state has both temporal and spatial qualities, in that the liminal state only lasts for a moment of real time but can be perceived as an expansive space that extends over a longer period. It is within this area, defined by the juxtaposition between the actual, and the potential to experience an altered reality in the temporal and spatial qualities of a site, that '*liminal'* locate their work.

'liminal' was established in January 2003 by architect Frances Crow and sound artist/composer David Prior, to combine their areas of expertise. In doing so they have developed a practice that explores the spatial potential of site-specific[1] sound.

The first site that *liminal* worked with was '*Living Coasts'*, Paignton Zoo's new coastal habitats visitor attraction in Torquay, UK. The project remit was to create a permanent sound installation to be opened to the public in the summer of 2003. *liminal's* response was *'Swash'*[2], a 24 channel pre-recorded work which explores narrative and spatial aspects of the *Living Coasts* site.

1.2 Sound installation in a public context.

In past projects, both members of *liminal* had approached installation from the perspective of *intervention,* the aim of which was to focus the viewer and/or listener's attention on the characteristics of a space and beyond the 'frame' of the artwork. While the emphasis might be on a physical, acoustical, technological, political or cultural

phenomena directly associated with that space, concentrating on one or more of these areas can have the effect of heightening our awareness of the space itself or the viewer and/or listener's place within it.

If an intervention can have the effect of mediating the expectation a visitor may have of an existing space, it can also heighten the experience of being in a place, or engender a feeling of disorientation. As Michael Archer writes in his introduction to the book 'Installation Art' "…the spectator's position in relation to a work of art is not a fixed 'point of view', but is itself the continually transforming upshot of the processes and conflicting impulses of the social experience". (de Oliveira, et al, 1994, 28)

For *liminal*, undertaking a commission in the context of a public art project required that we reassess our role as artists. We specifically addressed, the relationship we entered into with a commissioning team comprising an artistic director, a project manager, project architects, representatives from the zoo and the technical contractors who would eventually install the work[3].

While the clients were committed to and supportive of the commissioning of an art work, which they identified as being quite distinct from the rest of the exhibition interpretation and design, they nevertheless required of us that we respond creatively to a complex web of constraints. Because the installation was located right at the beginning of the visitor's route around the site, the 'first impression' that we created through our installation was obviously significant to the commissioning team. The sound work would also take the visitor through what the design team had identified as a thematically 'dead' or 'transitional' space and through to the first exhibit. While the piece had to perform the function of welcoming visitors, it was also important to the

client that it would keep people moving and somehow respond to and augment the existing exhibit.[4]

With these requirements forming an important part of the client's 'brief' for the project, many of our first instincts for possible interventions into the site would have proved inappropriate. Architects are used to responding to a brief by addressing the social and functional, as well as the aesthetic aspirations of a project and both members of *liminal* had in the past worked on commercial design projects. However, formulating an artistic response to a complex brief in a manner which allowed us enough autonomy to explore the sensitive ethical and political implications of the *Living Coasts* project proved to be one of the hardest aspects of the work to navigate.

2. Case Study: Swash

2.1 Sonic aspects of the space

In addressing the issues discussed above, it was important for us to come to a thorough understanding of the site and we made it our first task to explore as many different potential scenarios for the location for and concept of the piece before our first client presentation.

At the start of the commission, the site for the installation was still under construction. However, through the architect's drawings[5] and visits to the building site we constructed a visual and acoustic image of what the final space would be like.

Having looked at a number of potential areas within the building, the first ‘transition tunnel’ (fig i) that the visitor would encounter was for us the most intriguing space, both because of the ambiguity of its function and the very nature of its ‘tunnelness’. The site met the Zoo’s ‘brief’, for a space that could welcome visitors and was at that stage being perceived as ‘dead’ in terms of its programme[6].

The space we chose to use was a concrete tunnel leading from the ramped ‘welcome hall’ (fig ii) to the first underwater viewing window (fig iii). The hard surfaces and the long, rectilinear dimensions suggested to us that its acoustic characteristics would be hard, reverberant and unlikely to exhibit an evenly balanced frequency response. This ability to form an acoustic impression of a space, not only through its physical dimensions, but also through it’s phenomenological characteristics is explored by Rasmussen in his book ‘Experiencing Architecture’ (Rasmussen, 1959). He writes:

“Most people would probably say that as architecture does not produce sound, it cannot be heard. But neither does it radiate light and yet it can be seen. We see the light it reflects and thereby gain an impression of form and material. In the same way we hear the sounds it reflects and they, too, give us an impression of form and material. Differently shaped rooms and different materials reverberate differently.” (Rasmussen, 224)

To illustrate this point we shall take the example of The Whispering Gallery in St Paul’s Cathedral, London. The Gallery’s acoustic qualities provide us with an impression of the materials and form that create the architectural space. However, it also has another intriguing sonic characteristic, which only becomes perceptible through the act of whispering, even though it is reliant on the architectural form[7]. This ‘sound-

source' gives rise to an unexpected experience of the perceived space thereby creating new spatial relationships. The gesture of whispering is in this sense an 'intervention'. Unlike Rasmussen who expresses his experience of acoustic space through the eyes of an architect, Trevor Wishart describes the perception of an acoustic space, through the ears of a composer, by concentrating on the sound source Wishart perceives the space through the sound objects within it:

"In practice the nature of the perceived acoustic space cannot be separated from our perception of the sound-objects within it. We obtain our information about, for example, the reverberant properties of the space, by hearing out the temporal evolution of the sound-objects within the space and, for example, the different reverberation times of different objects within the space may give us further clues as to the overall acoustic quality of the implied sound-environment" (Wishart, 1996, 140).

The subtle difference in emphasis between these writers illustrates *liminal's* dual approach to the *Living Coasts* commission. As the architectural form was already designed and under construction, we decided to create an in-between site by the insertion of technology. This allowed us to develop the potential for new spatial and temporal relationships mediated through the sound material.

2.2 Spatial articulation of sound

The architects had already prescribed the form of the *Living Coasts* building, without specific thought to its acoustic qualities. When complete, the tunnel sounded more or less as expected but while there were subtle differences in the acoustic characteristics

of the four distinct areas[8], we concentrated our attention on devising means by which to articulate the acoustic, narrative and mimetic *implications* of the space rather than directly exploiting the natural acoustic. In order to achieve this, we created an additional sonic layer by means of 24, independently controlled loudspeakers. By making the speakers more or less equidistant to one-another and placing them at intervals close enough to enable the smooth transition of a sound from one loud speaker to another, we were able to conceive the entire installation space as a single 'sculptural' entity.

Unlike the physical form of a building, which is static, sound has a temporal quality; it has duration. This is also true of the visitor's experience of the space. As the visitor traverses a space, the experience they have is also temporal. The architect had designed the area we chose to use in such a way as to encourage people to keep moving. The estimated time for a visitor to traverse the installation space was between two and five minutes. As part of the 'brief' we were asked to encourage the visitor's to slow down. In response to this the sound was designed to 'widen' and 'deepen' the space.

The choice for the location of the speakers was based on devising a system that would provide as much scope for on-site spatialisation of the final composition as possible. This strategy was employed partly because the entire hardware system, including locations for speakers and cabling had to be specified within the first few weeks of our beginning work on the project. At the top of the welcome hall ramp, four flush mounted wall speakers were installed at low level in the balustrade followed by eight speakers mounted above head height. These were spaced asymmetrically, stepping along and across the parallel walls of the tunnel. This general principle was

kept up through the auk viewing area and out to the exit tunnel, mediated by the form of the existing spaces. Two sub-woofers were also located in the tunnel and while their effect is felt well into the adjoining ‘welcome ramp’ and ‘auk viewing area’, they nevertheless did imbue their most immediate environment with a particular sonic character that we were keen to exploit. (fig iv). The asymmetrical positioning of the speakers on the left and right of the space helped to enhance the experience of sound travelling from behind to in front and vice versa. The positioning also assisted us in the ‘widening’ of what was in reality a two-dimensional space.

2.3 Narrative aspects of the installation

Living Coasts explores coastal habitats from around the world, with exhibits including sea birds and mammals. Taking cues from both the architectural form and its narrative function, we proposed that the ‘soundscape’ should allude to an immersive, fluid environment. The installation site was located underground and felt somewhat claustrophobic and cut off from the outside world, although the distant sound of the sea could sometimes be heard (Living Coasts is located right on the coast on Beacon Cove in Torquay). The only natural light present in the tunnel was that refracted through the underwater viewing window at one end and the reflected light from the ‘welcome hall’ at the other. Simply by playing highly referential sounds, mediated by recording technologies into this space, metaphorical allusions to both a sub-marine immersion and the artificially ‘contained’ nature of a zoo environment emerged. In this way, the

very act of placing referential sound into the space provided the basic intervention we were looking for in that by doing this, we were able to make the space self reflexive.

2.4 Spatialising Sound

All the sounds used in the final work were sourced from recordings of water. We started by making recordings both under and above water from the beaches on the South-West Devon coastline.

Following early conversations with Dr. Sarah Bass and John Lovell of The Institute of Marine Science at the University of Plymouth, we researched the sonic character of underwater environments.[9] We discovered that one of the primary sources of natural sound in the ocean is that of the transference of energy within bubbles as they make their way to the surface. Unlike the familiar sounds of the sea recorded with conventional microphones above water, the underwater environment was quieter, more sparse and often suggestive of synthetic rather than organic sources. We were also able to make use of the Marine Science laboratory where we made further underwater source recordings using their hydraphone. By recording in this controlled environment we were able to develop more abstract sounds from the recordings of individual bubbles and isolated waves etc. Finally, we set up a recording environment with 24 microphones in the studios at Dartington College of Arts. The signal from each microphone was assigned to an individual recording track and in turn, a loudspeaker in the final 24-channel system. In this way, we were able to create an extremely complex simulation of the original space which would have been impossible by means of panning.

By specifying a sound system in which each loudspeaker could be controlled independently[10], we were able to move sounds seamlessly through space according to a series of 'movement models' we had devised. These models shifted the expected sonic frame of reference beyond the walls of the existing tunnel and in so doing changed the acoustic experience of the space.

The spatial dimension to *Swash* was an essential compositional parameter and indeed the task of spatialising the sounds (a mixture of mono, stereo and multi-channel recordings) took up two thirds of the time spent creating the work.[11] The models we devised ranged from simple, monaural 'steps', where isolated sonic gestures moved from one speaker to another, through to complex 'wave' motions modelled on the movement of ocean waves in the swash zone where the speed and flow of energy can be moving in a number of directions simultaneously. At times, all 24 speakers are used together to create immersive textures while at other times, monaural sounds are caused to 'swim' through the space by means of continual panning from one speaker to the next.

One of the techniques we found most effective was the re-mapping of sound sources to movement models. The 'wave' model, for example, based on the *energy* behaviour of a wave, was applied to another sound source which was made to rush through the space from the exit tunnel round to the auk viewing area before crashing into the tunnel and drawing back like the undertow of a wave into the welcome ramp.

As much of the composition work had to be done prior to the on-site mixing with only eight channels of studio monitoring, a great deal of work had to be done speculatively. In early studio work, we explored the movement implications of a sound in

a small-scale environment with a view to exploding those movements onto a macro scale later on. During this period, we also became interested in trying to incorporate implied movements into sounds even before they were physically spatialised. One example of this was our application of the 'Sheppard tone' principle onto complex, highly textured and in many cases noise-based sounds. Put to this end, the technique creates a barely perceptible sense of 'descent' in keeping with our approach to the physical articulation of the space.

3. Conclusion

3.1 Installation of sound in space

By combining the sound sources with the movement models the final piece *Swash* was created and installed on site, if we return once more to Wishart, his description of the sonic landscape conveniently describes what we have attempted to achieve.

"… The loudspeaker has in effect allowed us to set up a virtual acoustic space into which we may project an image of any real existing acoustic space … The existence of this virtual acoustic space, however, presents us with new creative possibilities. The acoustic space which we represent need not be real and we may in fact play with the listener's perception of landscape " (Wishart 1996. 136)

Wishart's discussion of spatial motion and landscape is applied only in terms of the *virtual* 'sonic landscape', usually experienced in a *neutral* space, for example, a

concert hall. *Swash* is installed in a real environment, which has many visual stimuli of its own that do not relate directly to the sound sources. It is interesting that when there is a removal of visual clues to the original source of sound, the visitor will substitute the visual clues of the space surrounding them. These visual clues, interact with the soundscape causing the visitor to make links that are not actually there.

3.2 Sonic Spaces

By recognising that we could locate our work between real and virtual space, we were able to construct a soundscape that augmented the spatial and temporal qualities of the existing site by going beyond the confines of the real space and into the realms of imagination. The combination of both the real and virtual provide an experience that expands the visitor's expectations and therefore heightens their awareness of the perceived space. This perceived space that lies between the real and the virtual, we choose to call a 'sonic space'.

[1] In on e of the first books to explore what installation art is, the term site-specificity is defined as follows: "It means, rather, that what the work looks like and what it means is dependant in large part on the configuration of the space in which it is realised" (N de Oliveira, N. Oxley, M. Petry, 1994)
[2] 'Swash' is the term used to describe the zone where the surf breaks on a beach.
[3] Please see acknowledgements for details.
[4] Part of the installation runs alongside an underwater viewing area in which diving auks and tufted penguins can be seen.
[5] The Architects for the project were Kay Elliot Architects, Torquay.
[6] By Programme we mean the function for the space.
[7] The whispering gallery takes its name from the following experience: A whisper produced by a visitor on one side of the gallery can be heard on the opposite side by another person.
[8] The four areas identified were 1) welcome hall ramp, (see fig ii.) 2) transition tunnel, (see fig. i.) 3) auk viewing area (see fig. iii.) and 4) exit tunnel.
[9] See References section, under preliminary research.
[10] For playback, we used a 24 channel hard disc recorder with each analogue output sent to an independent amplifier channel.
[11] An indepth study of the technical implications of spatial audio can be found in F. Rumsey book 'Spatial Audio'.

Acknowledgements

Project Team:

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Client: Paignton Zoo

Project Manager: Barry Edwards

Artist co-ordinator: Melanie Thompson

Architects: KEA Architects, Torquay

Building Contractors: Dean & Dyball

Lighting & Exhibition Design: O'Leary-Prescott

Audio System installation: Electrosonic

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Biography

liminal is a new company that specialises in the integration of sound and architecture to create 'sonic spaces'. The partnership was founded in 2003 by sound artist and composer David Prior and architect Frances Crow.

Frances Crow is a qualified architect with 6 years experience in practice, she has worked for a number of national and international practices. As well as her work with liminal she is a part-time lecturer at the University of Plymouth, UK and runs her own architectural design and research practice.

David Prior is a composer, sound artist and producer, he works across the disciplines of music, spatialised sound, video, gallery based and site specific installations. He is currently on the teaching staff at Dartington College of Arts in Devon, UK.

Images

Fig i. Transition tunnel. (image credit: liminal)

Fig ii. Welcome Hall. (image credit: liminal)

Fig iii. Auk underwater viewing window. (image credit: liminal)

Fig iv. Diagram showing layout of speakers (image credit: liminal)