

Subtle Objects

Pickup – an Interactive Sound Artwork

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Abstract

This paper describes the concept and realisation of an interactive sonic artwork, *Pickup*, exhibited at Jubilee Library in Brighton from 25th-30th May and at the University of Brighton Grand Parade Gallery from 9th-31st July 2010. The paper also discusses initial observations arising from the work and the use of interactivity in artworks.

Introduction

My research at Oxford Brookes is primarily concerned with the interaction between sound and sculptural three-dimensional objects in an art context. Historically, much sound art has been concerned with sound as an object rather than sound with an object. Nevertheless, some important work exists in this area, including *With Hidden Noise* (1916) by Marcel Duchamp, *Box with the Sound of its Own Making* (1961) by Robert Morris and the work of Rolf Julius which often incorporates simultaneous visual and audio elements. It has also been suggested that the physics-inspired constructions of Naum Gabo serve to illustrate the propagation of sound in space (Cabrera 1995, pp. 54-58), and certainly his *Kinetic*

Construction (Standing Wave) (c. 1920) is a direct visual illustration of the audio phenomenon. Michel Chion's work has also provided useful insights through his extensive exploration of the use of sound in relation to moving image (Chion 1994).

The work described in this paper is the first finished piece in a series I have termed 'Subtle Objects' – items in which additional layers of meaning are created or implied by the use of concurrent sounds. Furthermore the piece is interactive, requiring the viewer to pick up the object and manipulate it, which serves a dual purpose; firstly as a means to investigate how engagement with the piece is affected by direct interaction, and secondly as a practical solution allowing six sound files to be

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used and controlled simultaneously, creating a wider scope for interpretation. The aim of the work is that the experience of the piece will be unique for each participant, being created at the intersection of the physical object which is held, the audible object which is heard, and any a priori ideas or memories that the visitor has which are triggered by association.

Description of the Work

Pickup consists of a Nike sports shoe, placed on a purple velvet cushion on top of a plinth. A pair of headphones hangs on the front of the plinth (Figure 1). A sign instructs visitors to put on the headphones, pick up the shoe and tilt it. As the shoe is tilted it acts as a three-dimensional sound mixer (Figure 2). Six individual sound loops which relate to the shoe's manufacture or status as a consumer object are controlled using the shoe. The loops which are heard and the mix between them depends on the attitude of the shoe in space

Realisation

This work was created as part of the *Creative Campus Initiative (CCI)*, a project involving 13 universities from the South-East of England and aiming to stimulate and publicly exhibit academic arts research. Funded as part of the cultural olympiad, the CCI required that

works were in some way related to sport.

Pickup uses a sports trainer, specifically a Nike Air Jordan basketball shoe, as the main visual element of the piece. This was chosen for several reasons; mainly it is pre-loaded with pre-conceptions, allowing multiple routes to the creation of new narratives which challenge or extend our understanding of the immediate physical object. Using this shoe allows engagement with the ideas of manufacture, globalisation, capitalism, and commodity fetishism. It is a very attractive, seductive object. Finally it is a good size and weight to be handled, is robust and allows for secure mounting of the required technology.

Technology

Although the piece relies on digital technology, the main aim was (and is always) robustness and transparency – that is, that the technology is not noticed by the user – to allow visitors to engage with the work on a conceptual, rather than technological, basis.

The shoe was fitted with an *Analog Devices ADXL335 3-axis accelerometer*. This small circuit board measures acceleration due to gravity, which is used to measure positive or negative tilt



Figure 1.

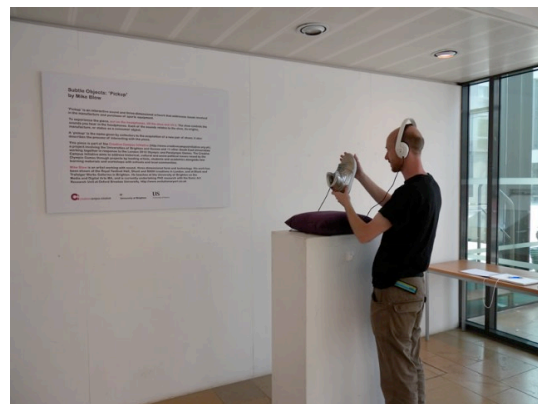


Figure 2.

in three directions. This means six distinct attitudes of the object can be

sensed, equating to the six sides of an invisible cube, plus any number of intermediate positions. Being the same control paradigm that is used in Wii controllers and the iPhone, among others, tilting has recently become an accepted and intuitive method of interacting with electronic equipment. The sensor was bonded into the base of the shoe using epoxy resin and a wire run to an arduino microcontroller which converts the three tilt measurements from analogue to digital signals and transmits them over USB to a Mac mini. A MAX/MSP patch running on the Mac receives the information from the shoe and uses it to control the volumes of the 6 sound files which continually loop.

The Sound Files

After some experimentation the sounds chosen for this piece all referred to the shoe's origins, manufacture or status as a desirable consumer object. They were: a sewing machine, some chinese speech, a cow mooing, a spoken description of the rubber tapping process over a rainforest ambience, the sound of docks and a ship's horn, and the soundtrack of a youtube video in which a US-based Air Jordan collector describes his latest 'pickup' – the term denoting the acquisition of a new pair of shoes and which inspired the name of the piece – which happen to be the same style as the pair I am using.

The sounds were selected to interact with the nature of the object and the user's preconceptions, and were deliberately not too political or prescriptive, to allow the participant's imagination to play a part in constructing a personal understanding of the piece. It was more important that a sound signify an easily understood concept than for it to be literally correct. As Michel Chion notes in his book *Audio-Vision*:

'For the spectator, it is not acoustical realism so much as synchrony above all, and secondarily the factor of verisimilitude (verisimilitude arising not from truth but from convention), that will lead him or her to connect a sound to an event or detail.' (Chion 1994, p. 22)

For instance, as the sound of a domestic sewing machine – which would not have been used to make a shoe like this – fits most people's concept of sewing better than the more accurate sound of a room of industrial machines, I decided to use the 'incorrect' sound to indicate the sewing of the shoe. The cow serves to point out not only the origins of the leather, but also the enormous transformative process that has taken place in turning the leather from the skin of an animal into a reflective, zinc-coloured, metallic form. Some sounds are mapped to corresponding visual aspects of the shoe, for instance the description of rubber-tapping is heard with the shoe in the 'upside-down' position, when the user is likely to be viewing the rubber sole.

Each of the sounds was normalised and compressed to approximately the same volume. Final volume trimming was carried out in the MAX/MSP patch. An important element of subtle objects is that in use the individual sounds are rarely heard on their own, but – because of the attitude of the object – are usually mixed with one or two of the other sounds in some proportion.

Presentation

The shoe was placed on a purple velvet cushion on top of a plinth, with the sensor and headphone wires leading to the computer inside the plinth. The presentation style is designed to exploit the aura of a new, glossy and seductive object, as a comment on the commodity-fetishism encouraged by sports apparel manufacturers (by, for instance, creating limited editions, endowing products with the endorsement of successful athletes,

and creating essentially the same product in multiple versions or colours), and echoes Jeff Koons' comment in relation to commodity-based work:

'...through this procession of contingencies, discourses are being pulled together into the object itself, promoting an awareness of the fact that all meanings are contingent upon some other meaning, where meanings are appropriated for their relationship to external forces, the larger social schema in which they're involved.' (Koons 1986, cited in Harrison and Wood 2003, pp. 1051-1054)

Like the re-contextualisation of Duchamp's *readymades* (Duchamp 1917, after Harrison and Wood 2003, p. 252), presenting the shoe in this way strips away associations of its practical use, perhaps reminds us of its presentation in a shop display, and reinforces the idea of an object which is coveted and revered as a signifier of personal status.

Interaction

As previously mentioned *Pickup* is interactive, a word which has been used in many ways in an art context, from describing the cognitive processes involved in understanding a static piece, to the navigation of a website or the interpersonal communication between multiple participants in a live-art 'happening'. In this case I am defining interaction as the formation of a feedback loop between the user and the work; in other words, the user engages in a dialog with the work in a way which changes his or her understanding of the work, which prompts further engagement and so on. This definition of interactivity implies that the piece is not complete without the input of the participant, and crucially highlights their own agency as a co-creator of their experience. Thus each user's experience is to a degree self-directed and unique. In this case, the angle of the shoe allows mixing of the sounds in any

proportion, allowing the exploration of a space of possible sound combinations, as well as an exploration of the visual appearance of the shoe from various angles. The use of headphones creates a tight, personal feedback loop by ensuring that only the person moving the object can perceive the changes that result.

Discussion

Evaluation can be problematic in arts research, given the essentially subjective nature of the experience. Issues arise both in terms of how to evaluate, and how much. *Pickup* has been shown as a work in progress to members of the public, followed by an open discussion about the piece. This has proved to be a useful methodology, resulting in some valuable insights with less of the prescriptive and suggestive quality of, say, a questionnaire. Listed below are some points arising from observation and discussion, which together map out a terrain including perceptual reaction to the piece and how participants relate to it.

Use of the shoe as a musical controller. A number of participants tilted the shoe quickly back and forth between two orientations, to create effects similar to a DJ 'scratching' a record. In this way the shoe had less symbolic resonance and became more of a plaything, akin to an instrument or music controller. These users mentioned that to use the shoe in this way gave them a sense of empowerment, linked to the idea of being a DJ. I would suggest that the use of interactivity in the piece creates (or at least enhances) this feeling of empowerment, as it is the participant's own actions and the assumption of control which lead to the empowering experience. One user commented that the object ceases to be a shoe because of the way it is being used.

'The robustness of the shoe encourages interaction.'¹

'It is fun to use, and fun to watch other people using.'²

'The presentation of a 'golden' (sic) shoe on a cushion has overtones of an 'urban Cinderella'.'

Transparency of technology. Most discussions about the piece after people have tried it have not focussed around the technology, but on the content and concept of the piece. Users have commented that the work is clear and easy to use, and not getting stuck at the level of non-functioning or distracting – perhaps over-functioning? – technology allowed them to engage with the content and interact with the work on a conceptual and imaginative basis.

Preconceptions and space to play. Several people reported hearing sounds that do not exist in any of the recordings, and some were surprised when the sounds they expected to hear – such as footsteps – were not in fact present. The intention in providing somewhat apolitical sounds to accompany the shoe was to allow participant's imaginations room to create a personal experience out of what they saw, heard and, crucially, knew already. These might be things that were very obviously associated with a product like this – and as such didn't need to be spelled out – or simply knowledge that had become dulled by over-familiarity, such as the fact that the shoe was once a cow (and,

by logical extension, was once grass). For instance, one of the comments at a work-in-progress showing of the piece concerned hearing 'a sweatshop'. In fact, nowhere in any of the sounds does a sweatshop appear, but the perceptual proximity of a trainer, the Nike brand, the sounds of sewing and Chinese speech are enough to create a suggestion to that effect in the imagination of the user. It is in leaving the imagination 'space to play' that engagement lies.

Further Work

Further research will involve a wider range of objects and sounds, and experiments with combinations of audio loops that bring simultaneous, but contrasting, readings to an object. The sounds used in this version are all narrative, but more abstract sounds could be used which engage with the material nature of the object or its psychological or emotional influence. I also hope to deepen and formalise my understanding of how a gestalt perception is created from the two (or three, including touch) sensory modalities.

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¹ This quote and the two following quotes are from members of the public at a work-in-progress showing of the piece, 'Scratch', The Basement, Brighton UK, 22nd April 2010.

² Brian Reffin Smith's 43 Dodgy Statements on Computer Art #22 states: 'The best interactive art always makes you look at the participants' – although this was not the intention. All 43 (thought-provoking) statements are available at <http://tinyurl.com/smith-43statements>