

ENSEMBLE: EMBODIED EXPERIENCES IN A SOUND AND JEWELLERY INSTALLATION

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Ensemble is an interactive suite of jewellery designed to be experienced within a gallery environment. The project explores the issues of user control of information during social interaction and highlights ways in which self determination can take place through the medium of sound. The paper will describe facets of the design process associated with the 9 month project and will emphasise the role of a Movement Workshop conducted during the second half of the project. Analysis of the data generated through the workshop, together with personal narratives collected over the duration of the work, will be discussed in the context of how they informed the design and final form of the jewellery installation that marked the conclusion of the project.

Introduction

Ensemble is an interactive installation of jewellery and sound that utilises speck based computing (Arvind & Wong, 2004) to wirelessly connect the pieces. Embedded within each piece of jewellery is a speck computer together with a sensor that measures and communicates interaction, for example touch. Interaction with and between the pieces effects change in the soundscape created for the installation. The project ran for 9 months and was funded by the Arts & Humanities Research Council (AHRC).

The ideas underpinning the work originated from the first author's doctoral research in the field of wearable technology in the form of jewellery (Kettley and Smyth, 2004, 2006). In this earlier work, the emphasis had almost entirely been on the visual interface, thus it was a natural progression to explore other modes of interaction and information delivery. From the outset Ensemble was framed as a vehicle for exploring the role of sound in the wearable experience. The work sought to provoke debate concerning the conceptions of privacy within the domain of wearable computing through a series of recorded personal narratives on the theme of the body and jewellery. It was envisaged that in the final installation environment these narratives would be revealed as participants interacted with the jewellery thereby controlling the exposure of the narratives or indeed how the information is shared in a reciprocal pattern of disclosure.

The Vision of Ensemble

At the outset the aim of the research was to connect up to 10 pieces of jewellery in a wireless, peer to peer network. The network and the interaction behaviour exhibited by each

piece would be managed by the speck computers and a central node. The pieces would be arranged in a space with an audio speaker associated with each, a soundscape would be played from each speaker. The soundscape was initially conceived as being composed of textures relating to the pieces of jewellery, with each piece being associated to an appropriate texture. This was inspired by Michael and Cornelius Cardew's interest in the 'sonorous stone', the early Chinese classification of instruments according to material, an emphasis on tone over melody and the related pragmatic and metaphorical notion of 'absolute pitch'. In this system, there are eight materials used to create instruments: gourd (sheng); bamboo (panpipes); wood (*chu*, a trough-shaped percussion instrument); silk (various types of zither, with silk strings); clay (globular flute); metal (bell); stone (sonorous stone); and skin (drum) (Music of China 2003). Interaction with the system would be driven by sensors in each piece that could be manipulated and worn by audience members. The resulting modulation of the channels associated with each piece would provide an engaging feedback mechanism.

The soundscape would also conceal a number of personal narratives on the subject of jewellery, inspired by Paul Auster's collection of True Tales of American Life (1999). These ideally would be recorded at the site of the installation and so present a very personal record potentially available in a public space. Two main interaction algorithms were explored as mechanisms to reveal the hidden narratives, the first dependant on relative interactions between at least two audience 'players', and the second dependant on the duration of interaction with each piece.

Gathering Personal Narratives

The original concept was to allow the audience to record personal narratives at the installation event. The approach was simplified in favour of collecting stories throughout the duration of the project, both in interview, and through contributions to a dedicated blog (jewellerytalks 2007). Participants were sought through an advertisement placed in a local listings magazine. Respondents approached the interview very differently, and many waited to answer prompt questions rather than having a tale to tell, which gave choppy statements rather than the required narrative flow. A notable exception was a Japanese woman, who had recently completed the Santiago de Compostelo pilgrimage in Spain for the third time. On hearing the other voices in amongst the more sensitive soundscape, it was decided to concentrate on using this most poetic reflection on experience and objects throughout the installation, accessed by all the pieces. This was an artistic decision in the face of the original concept come to life. The explicit references to jewellery in the speeches of the respondents jarred with what was becoming a coherent expressive sound and object work. This narrative on the other hand, had an inherent quality that seemed to resonate with the feeling of the work as a whole. Further, given more time, it may have been possible to filter the other voices to blend them into the soundscape more successfully, whereas the narrator's voice and delivery had a breathiness and brokenness that suited the textures already developing in the sonic work.

The Design Process

The design process employed during the project sought to explore the relationship between a craft based approach to jewellery design and those techniques more normally associated with the design of technological artifacts. Other factors that influenced the design process were

the Movement Workshop and the personal narratives describing individuals' relationships with jewellery. The narrative described in the previous section was highly influential on the design process and eventually formed the bases of the soundscape incorporated in the final installation of the work. This narrative described the person's relationship with the land and how this had developed through walking. The concept of land and organic features acted as a 'bridge' (Cross, 1996) to the articulation of the jewellery in terms of both the choice of materials and the eventual forms of the pieces. Processes such as resin casting, painting thick silicon rubbers over other materials, the use of found materials such as bark, and exaggerated forms such as the cord neckpiece and the pelt pins, were used to draw attention to the performative nature of jewellery in social settings. The notions of affordance and of adornment were supported for demeanour and for designating interactive surface areas on the pieces. Fingers are drawn to rough or unusual textures, hands run up and down braided cords, weights are swung and lifted, suede is stroked and latex touched. Examples of early development sketches and a prototype piece are provided in Figure 1.



Figure 1. Early Development Sketches and Prototype Cord Neckpiece.

Over the 9 month duration of the work, the production of the jewellery and the ongoing

development of the speck computers that were to be incorporated within each piece, caused the nature of the final installation of the work to shift gradually. This implicit learning was supported by the explicit knowledge gained through a planned Movement Workshop undertaken in the second half of the project.

The Movement Workshop

As part of the process of better understanding the performance attributes exhibited by each of the jewellery pieces a Movement Workshop was organized. The purpose of the workshop was to inform the nature and placement of the sensors within the jewellery. To enable this, approximately 20 people from the fields of jewellery design and computing were invited to view, interact with and comment upon, 10 developmental jewellery pieces. While each piece contained no technology, what the workshop allowed was both observation of, and discussion with, participants as they handled the jewellery. Throughout the workshop the interactions were recorded by means of 3 static cameras. This was supplemented by researchers who talked with participants while they handled the pieces in order to direct and facilitate the debate. The approach sought to reveal how participants discovered the potential for interaction of each piece and at a more general level how people related the pieces back to their own lifeworlds as well as the current situation of the installation (Kettley and Smyth, 2006). The researchers were not only looking for a mapping of gestural input to sonic output, but also for more subtle clues as to how people take on wearable artefacts to create a new social actor composed of themselves and the new object. This concept draws on Actor Network Theory, in which non-human objects are recognised as having as much impact as human actors on the texture and meaning of a space (Latour 2005). It was further informed by a position paper given at Design and Emotion (Candy & Edmundsen 2006), in which the authors proposed that wearers develop and nurture *demeanour* as a direct result of the things they wear, use and carry about them. Demeanour in this respect is taken to mean a collection of gestural and attitudinal characteristics that combine to create a character for enactment on the social stage. Examples can include nonchalant or nervous attitudes conveyed by stance in cigarette smoking, or the difference in attitude supported by wearing trainers as opposed to stilettos.

The jewellery developed for the movement workshop was a direct result of these interests; instead of trying to create pieces that would be accepted into users' lifeworlds without difficulty, the theatricality of contemporary jewellery was deliberately exploited to invite the creation of new demeanours, attitudes and characters. Exaggerated forms and textures in the pieces acted as affordances for behaviour, both in directing attention to specific areas for touch or movement (an internal interface), and in prompting particular kinds of appropriation and display (an external interface). It deliberately sought to highlight the ways in which objects, not only technologies, bring significant characteristics to bear on our experiences and understanding of the world, and to expose them explicitly as non-neutral tools.

Analysis of the Movement Workshop

The video recordings of the Movement Workshop were individually transcribed and classified against two main themes, firstly the physical movement associated with each piece and secondly the style of interaction with the piece. An extract from the transcript is provided in Table 1. The transcripts were coded for each piece of jewellery with the aim of identifying emergent patterns of response by individual participants. A grounded theory

approach was adopted (Strauss & Corbin, 1990) and at the conclusion of the analysis each piece or group of pieces were grouped into two major forms. The ‘interaction styles and formal elements’ analysis was derived from the video analysis while the ‘perceived design themes’ were revealed through the participant discussions, associations and movements.

Table 1. Excerpt of transcript from recoding of Movement Workshop.

24.00	S picks up cuff, puts it on, holds in two hands, palms against the texture
25.24	M and S finger delicate latex flowers
26.00	S fingers ends of longer latex pieces
26.30	M1’s wife handling scaffold piece Looking for pin attachment for the shoulder
27.26	‘Christmas tree!’, ‘light’ (weight)
28.00	holds both ends to put it back down
28.39	J posing with twig and rubber brooch on bust - facing to camera M1’s wife stroking it with thumb, finger J handling plaster pieces
29.46	M1’s daughter with long formica necklace Trying it round the head

These activities subsequently informed the design of the final sensor enabled pieces in both functional and poetic ways. The selection and integration of the sensors was guided by the nature of the touch and movement employed by the participants at the Movement Workshop.

Where the observed demeanour was interpreted as being associated with a formal element of a piece, for example texture, the artist sought to exaggerate this characteristic in the final piece of jewellery. Analysis of the data has provided feedback on aspects of touch and movement interaction with specific forms and materials in relation to the body and in relation to participants’ ‘social body’ (Crossley, 2001). The analysis allowed the artist to make connections with the previously collected personal narratives that were collected as a parallel activity.

The Final Installation



Figure 2. Participant and researcher handle jewellery at the final project installation, together with close up of actual piece.

The final installation of the full Ensemble work took place in March 2007 (Figure 2). This public event was designed to enable participants to interact with the jewellery pieces and subsequently affect the resulting soundscape. Eight working pieces were exhibited, together with a selection of prototypes. Each piece was associated with an audio speaker which were arranged in a circle within the gallery space. Around 36 people attended the 90 minute event and each had the opportunity to explore the jewellery and the interaction that it supported. By means of wearing, touching or moving the individual pieces the personal narrative could be activated through the audio speaker associated with the piece. As discussed previously, a single narrative was chosen out of the collected stories. Furthermore, its sonic qualities complimented the samples of ethnic percussion instruments used to create the soundscape. Informal observation of the participants revealed that the interaction with the pieces was generally focused towards understanding each piece's scope for changing the associated sound channels. Indeed participants appeared to be more concerned with 'finding the trick' for modulating 'their' sound or for 'stealing the narrative' from others. While such playful interaction was rewarding to observe, the scope for feedback from the participants was more limited than originally anticipated. Brief feedback sheets were available to attendees but few availed of this opportunity, preferring instead to talk informally with the researchers.

Planned future incarnations of the work may attempt to utilise all of the collected narratives, as originally intended, filtering them first, or using random looping to introduce an element of ambiguity. This would have the advantage of narrowing the interaction to two people and two pieces in a more controlled environment to lead the turn taking patterns of gesture and listening that were expected here; or, in future work, situating the sounds in the pieces themselves. It would also be valuable to invite trained actors to play with the work, towards bridging the gaps between the performance space of the installation, and potential 'real worlds'.

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