

BELOW THE BELT – PARTICIPANT EXPERIENCE IN A BREATH CONTROLLED INTERACTIVE ARTWORK

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Contemporary theories of embodiment and affect are explored in relation to the breath-responsive interactive installation, *Below the Belt*. The artwork uses bio-sensed data to measure the breathing patterns of participants in an attempt to uncover the relationship between breath and emotion. The artwork forms the test-bed in an examination of how emotion and breath are considered in the construction of experience across bodily and social realms.



Fig. 1. Below the Belt, 2011, Giann Hughes, photo- graphic media, Copyright Pia van Gelder.



Fig. 2. Below the Belt participants, 2011, Giann Hughes, photo- graphic media, Copyright Pia van Gelder.

Introduction

Despite the development of body-responsive interactive art the vast majority of artists and researchers working within this genre have explored embodiment from an external perspective, privileging the senses of the outer body or the proprioceptive sense of the body in space. Few have examined perceptions of the inner body. Where the inner senses have been used to drive the work the participant's focus has often been directed towards self-reflection and their affecting relationship with the social sphere has been ignored. When the affective nature of social interactions is considered the works have commonly bestowed a pacifying and subdued meditative tone.

The interactive installation *Below the Belt* is a breath-responsive artwork exploring how the aesthetic experience of engagement with breathing and emotion can promote an awareness of embodiment. It amplifies the breathing patterns of participants to extend their expressive and perceptual awareness and their connections to the inner senses. Often we only become aware of these senses when we become unwell. This can lead us to alienate the body further in an attempt to dissociate ourselves from the discomfort, and so detachment becomes a habit. This work examines how breath awareness can subvert our customary tendency to favour the outer body above the inner body by magnifying our perception of our inner world. [1]

Below the Belt provokes the participant to explore the broader relationship between their breath, emotions and the social realm. It stretches their focus beyond their fleshy boundary to bring awareness to the subtleties of the affective relationship between these bodily responses and their social interactions. The primary motivation of this work is to take the lived experience of breathing out of the private realm and into the public. It attempts to understand participants' first hand accounts of their experience using a phenomenological approach as a way of focusing on the whole bodily being.

In this paper I briefly explore theories of embodiment and affect to assess the role that emotion and breath play in bodily and social domains. I continue by positioning this work in relation to other breath-focused interactive artworks before providing some context to the work itself. The paper concludes with reflections on the experiences of a selection of the participants who encountered the work and on how these findings are informing my ongoing research in this area.

Embodiment and Affect

Contemporary approaches to the study of embodiment and affect theory sustain inquiry into lived experience, subjective perspectives and meaning making. The existentialist phenomenological tradition questions the dualistic nature of Cartesian thought that bifurcates mind and body. In *Phenomenology of Perception*, Maurice Merleau-Ponty explained perception as bodily experience where the body is subject distinguishing between the objective, physiological entity of the body and the phenomenal body that we experience the world through. [2] However the term embodiment is still often misused to describe the body's role in cognition while still maintaining the Cartesian paradigm. I believe embodiment is the very nature of being and the primacy of the body in constructing experience.

Medical anthropologist Margot Lyon suggests that because the experience of embodiment is accentuated when we are emotionally present in the world, we can study embodiment by studying emotion or a bodily capacity linked to emotion, such as breath. [3] The respiratory function is related to feeling in part because of the nerve fibres it shares with the autonomic nervous system, which plays an important part

in emotion. For example, slow, deep breathing can regulate the functioning of the autonomic nervous system by increasing parasympathetic activity (rest and digest responses), effectively bringing the involuntary autonomous nervous system into the realm of the voluntary. This argument does not attempt to diminish emotion to the function or arousal of breath. It acknowledges that behaviour cannot be reduced to physiological processes and makes no attempt to match feelings with particular breathing patterns.

It should be noted that whilst embodiment and affect theory has only recently been articulated by Western scholars it has of course been studied through practice based research for many centuries by philosophers of Eastern traditions who have used breathing practices and meditative states to reflect on states of consciousness.

Body-responsive Interactive Art

Body-responsive interactive art is entirely reliant on the actions of the participant, which becomes the instrument of communication. The participant responds to the work through their embodied reactions, the work reinterprets this feedback and so the dialogue unfolds. Their aesthetic experience is defined not in terms of beauty but rather through their experience of this interaction. It is this experience that creates meaning for the work. Body-focused interactive artworks provide a unique platform to engage in dialogical exploratory practices.

As biofeedback technology has emerged, so have creative ways of engaging with digital breath-focused interactive artworks. *Below the Belt* is situated amongst works that are activated by breath such as George Khut's work *Cardiomorphologies v1*. [4] My research looks beyond the self-reflective aspects of this focus to the broader affect of breath on the social realm. Works being created in this area include Christa Sommerer and Laurent Mignonneau's *Mobile Feelings*. [5] Also Thecla Shiphorst's wearable body architecture *Whisper*, which uses breath to explore human interactions in the social domain. [6] Where as most artists working in this area have focused on the meditative aspects of reflections on their work I am interested in provoking a broader range of responses from participants to allow them to more fully explore the complex relationship between their breath and emotions. The artwork *Below the Belt* provides the 'black box' in which to examine these theories.

Below the Belt

Below The Belt is an interactive installation that affords participants the space to feel the affective nature of emotion, and its role in human experience, through the prism of breath. It attempts to re-embodied interaction within video installations, to amplify and extend the bodily experience of participants. The installation uses affective computing and the breath of participants as the vehicle to explore embodied subjectivity. It places embodiment theory and the affecting influence of emotion and breath centre stage, directing participant attention to their breath to explore how it is affected by the instruction. The participant is presented with a playful environment to experiment with breathing techniques and an opportunity to cultivate their breathing literacy. Participants interact with breathing coaching Tony, made visible through a single channel projection, who guides them to slow down their breath and increase the natural rise and fall of their abdomen.

The installation relies on wearable computing to make Tony's instruction audible – protective boxing headgear, implanted with wireless headphones, provide an immersive auditory environment blocking out extraneous sound and focusing the participant's vision on the projected video. A biosensor embedded in a champion title-boxing belt wirelessly relays the degree of stretching to an Arduino microprocessor attached to a laptop. The microprocessor feeds this stream of data to Max/MSP software (Cycling 74), which identifies patterns in the data attributable to the pace of breathing and degree of abdominal movement. The laptop, visible directly under the projected video image, displays the Max patch, the guts of the processing driving the work. This includes a simple graphic representation of the participant's pattern of breathing.

The first stage of the encounter involved attaching the belt, immediately drawing the participant's attention to their upper abdomen, the region under measurement. Tony then spends the first minute setting the scene and explaining the rules of engagement. During this time a baseline is calibrated for each participant according to her or his breath patterning. The participant's overall performance is judged according to deviations from this baseline. Thereafter, at regular intervals the average value for the preceding period is calculated and compared to the participant's previous results. These differential values are fed to Jitter software which triggers the appropriate video vignette of Tony's feedback. The work does not attempt to make judgments about the participant's natural breathing patterns as performance is measured in terms of changes in the pattern of breathing during the encounter.

The breath coach, Tony O'Loughlin, is actually a boxing coach from Elouera-Tony Mundine gym in Sydney. Tony's antagonistic coaching style starkly contrasts with instruction found in the more popular meditative breathing practices. He takes each participant through five rounds. After each round he provides feedback, often harsh, on their breathing performance for that round, based on the Max patch results, and offers appropriate breathing exercises to improve performance in the next round. At the end of the five rounds the competitor's overall performance is calculated and Tony proclaims their performance with all the fanfare of a championship bout. Tony's aggressive motivational style was chosen as a way of provoking a reaction that is at odds with the calm, smooth breathing he demands. The participant has the challenge of obeying instruction to relax and breathe deeply, delivered in a forceful and abrasive style. The natural body response to this harsh feedback for some may be an increase in their nervous system's sympathetic responses leading to shallower, faster breathing.

Through the metaphor of boxing the work examines the tensions between competitive contact sports and the inward focus of supportive breathing practices. It plays with the constant mediating role that breath plays in the bodily and the social realm. While the participant is sensing and performing their responses they are also differentiating and appreciating the systems interpretations, in the full knowledge that they are being measured. Although the work relies on rhetoric grounded in competition the reality is that each participant is only ever competing against herself or himself, never with each other. The irony is that when participants get caught up in this sense of competition the natural reaction of the body is to retreat to flight or fight mode which produces shallower, faster breath consequently impairing their performance.

Understanding Participant Experience

When John Dewey redefined aesthetic experience, he contended that the work that art does takes place within the entire process of art making. Art is more than the material 'work of art', it is the development

of an experience and recognises the aesthetic experience in everyday living. Pragmatist aesthetics elevated the experience of the audience as a vital component in completing an artwork. It proposes that to fully assess any work of art the experiences of those who interact with it must be considered and understood. [7] This philosophical position supports the dialogical aspect of my inquiry that seeks to understand the lived experiences of participants interacting with this work.

There is very little empirical research on audience experience of interactive art. [8] Whilst various literature has examined participants' creative engagement with body-focused interactive artworks these approaches have mainly used third person investigations which rarely examine the physical, emotional and affective experience. Where they have taken into account the quality of experience they have often employed methodologies that take an embodied cognitive approach, which maintains that the mind is split from the body. In addition purely first-person accounts of participant experience can easily be dismissed in academic realms as anecdotal, unless they have been rigorously interrogated. My exploration is motivated not just in attempting to understand the experience of interacting with the artwork but also in seeking to understand the participant's interoceptive exploration. This area has been neglected, perhaps due to the difficulty of articulating experiential response, yet it remains central to the way in which we interpret and understand an artwork. The phenomenological approach used in this investigation recognises the body as our basic mode of being in the world in terms of both the process and practice of this research.

The relational practice that grounds this work seeks to develop dialogue between the participants, their audience and the artist. Seeking to understand their experiences during their interaction with *Below the Belt* led me to enter into research-focused dialogues with seven randomly selected participants. Unstructured interviews, conducted immediately following the encounter, used open questions to initiate a conversation about the experience. Participants were asked to recollect their thoughts, feelings, perceptions and sensory memories of the interaction. More specific questions followed, focusing on observed body language, gesticulations and breathing quality.

Reflections

A selection of participant quotes are found below along with a brief description of the themes identified in these responses.

BREATHING LITERACY

The diverse quality of participants' connection to their breathing is illustrated by the following statements:

S1: "I never think of my breath, it's just kind of always there".

S3: "Tony's advice was at odds with the instructions I was given as a kid with asthma. I used to be told to breath into my chest and not into my belly. That new logic was really hard for me."

ENGAGEMENT

Participants chose to engage with the artwork in a variety of ways as described below:

S2: "I got swept up by the competition. I got heavyweight but I found myself quite anxious and tight in the process. Although I fooled the system I feel like I cheated myself".

S4: "About half way through I could see the graph on the laptop and figured it was my breathing. I hooked on to it for the rest of the time".

PARTICIPANT CO-EXPERIENCE

The social aspect of this seemingly solitary pursuit was perhaps impacted by the competitive tone of the work. Some took the opportunity to perform to their audience – on a number of occasions the participant, on stepping out of the installation, would announce to their 'audience' the title Tony had given them, often in the same flourishing style he had used.

S2: "I was determined to beat my girlfriend – she got super-heavy weight."

The challenge for both interviewer and participant in understanding these encounters is the limitation of words to describe an embodied experience. This required attentiveness to all the forms of communication used by participants in relaying their experiences. They were encouraged to verbalise their body language and take time to unearth meaning where there was ambiguity in their language. Overall, participants reported an appreciation of the opportunity to have their breath foregrounded in this way.

Some participants struggled to recollect aspects of their encounter. It is intended that future studies employ the video cued recall method to support participant memory. The audiovisual nature of this medium honours the temporal, embodied and emotive nature of the artwork and captures the participant's body language, gesticulations, breathing quality and tonal subtleties of voice.

References and Notes:

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5. Christa Sommerer and Laurent Mignonneau, "Mobile Feelings wireless communication of heart-beat and breath for mobile art" (paper presented at 14th International Conference on Artificial Reality and Telexistence, Seoul, 2004).
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7. John Dewey, *Art as Experience* (New York: Capricorn Books; Paragon, 1959).
8. Brigid Costello, Lizzie Muller, Shigeki Amitani and Ernest Edmonds, "Understanding the experience of interactive art: Iamascope in Beta_space" (paper presented at Australasian conference on Interactive entertainment, Sydney, 2005).